0008

UtahAmerican Energy, Inc.

February 19, 2004

Pam Grubaugh-Littig
Permit Supervisor
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

Incoming
C/007/013

Re: 04-004 Copy of the Kaiser Steel Corporation South Lease Coal Property PAP.

Dear Ms. Grubaugh-Littig,

Enclosed you will find (1) copy of the Kaiser Steel South Lease Coal Property Application. A copy was requested by DOGM to be used as a reference only.

This copy of the Kaiser Application is to be used as a reference by DOGM and is not to be amended to the Lila Canyon Extension Application. All applicable referenced portions of the Kaiser Application have been included in the Lila Canyon Extension Application.

Because the Kaiser Steel information is being submitted for reference only, C1 and C2 forms are not included.

Should you have any questions please call.

Sincerely,

R. Jay Marshall

R. Jay Marshall
Project Engineer

File in:
☐ Confidential
☐ Shelf
☒ Expandable
Refer to Record No 0008 Date 02192004
In C0070013, 2004, Incoming
For additional information

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APPLICATION FOR AN UNDERGROUND COAL MINE PERMIT

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
EMERY COUNTY, UTAH

VOLUME 5 OF 7

CHAPTER

VI GEOLOGY
VII HYDROLOGY

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6.1 Scope

This chapter on geology pertains primarily to the requirements under UMC-783.13 and 783.14.

The general geologic setting of the Book Cliffs coal field, of which the South Lease Coal Property Mine Plan Area (MPA) is a part, is presented together with a review of previous geologic studies of the area.

Stratigraphy, structure and coal geology in the permit area and vicinity are covered with appropriate illustrations.

Drill logs for exploration drill holes representative of areas planned to be mined during the permit period are included with a discussion of geologic characteristics of the coal, roof and floor rock.

Impacts of mining during the permit period are not expected to differ materially from presently operating mines in the Book Cliffs area. Mining and surface hazards are considered to be normal considering the depth of cover and rock conditions.

Total sulfur in the coal mined during the permit period is expected to be less than 1.1 percent, of which pyritic sulfur will generally be 0.35 percentage point or less.

All basic exploration and interpretive data generated by the many exploration programs including the requirements of General Mining Order No. 1, have been submitted to the Area Mining Supervisor, USGS, Salt Lake City.

6.2 Methodology

The geological characteristics of the MPA and surrounding areas have been described in numerous government and private publications in addition to the exploration programs conducted by Kaiser Steel. The maps, figures and narratives of this chapter are derived from these data.

6.3 Regional Geologic Framework

Physiographically, the subject area is included in the Colorado Plateau province. The Uinta Basin lies to the northeast, the San Rafael Swell to the southwest, and the Wasatch Plateau to the west. The MPA is situated in the western Book Cliffs, an escarpment that extends east and south from Castle Gate to Green River, Utah, then east to Grand Junction, Colorado, a distance of 180 miles.

Rocks of Jurassic, Cretaceous, Tertiary and Quaternary ages outcrop in the region. The coal-producing Blackhawk Formation of Upper Cretaceous age dips west, northeast and locally eastward away from the structurally high San Rafael Swell. The MPA is located in the above-mentioned eastward dipping portion of the Book Cliffs escarpment.

6.4 Geology of Project Vicinity

6.4.1 Stratigraphy

Many earth scientists have described and interpreted rocks of the project vicinity. Clark (1928) mapped the geology and coal outcrops in the western part of the Book Cliffs coal field. Fisher (1936) mapped the area south and east of Clark's map along the Book Cliffs to the Utah-Colorado state line. The geology and coal deposits in the area have also been described by Abbott and Liscomb (1956), Fisher, Erdmann, and Reeside (1960), and Young (1955, 1957, and 1966). Doelling (1972) has summarized and updated the geology and coal information reported in earlier writings. Recent contributions to the understanding of the coal deposits are Osterwald and Mayberry (1974) (Plate VI-1) and Balsley and Horne (1979).

The coal beds of economic importance in the Book Cliffs coal field are Upper Cretaceous in age, and are confined to the Blackhawk Formation of the Mesaverde Group. The Mesaverde in the project vicinity consists of three formations which are, in ascending order, the Blackhawk Formation, Castlegate Sandstone, and the Price River Formation. The Upper Cretaceous Mancos Shale underlies and intertongues with the Blackhawk Formation. The Mancos Shale was deposited in an offshore marine environment and the Blackhawk Formation is a mixed marine and continental environment. The Castlegate Sandstone and the Price River Formation were formed in a continental environment. The bluish-gray shale of the Mancos Shale crops out below the base of the Book Cliffs and in places is capped by pediment deposits from the Pleistocene. Sandstone beds of the Blackhawk Formation crop out in steep and precipitous cliffs and ledges above the Mancos Shale.

6.4 Cont.

Osterwald and Mayberry (1974) divide the Blackhawk Formation into the following two members: the Lower Mudstone Member and Kenilworth Member, 150 to 300 feet thick; and the Upper Mudstone and Sunnyside Member, 150 to 350 feet thick.

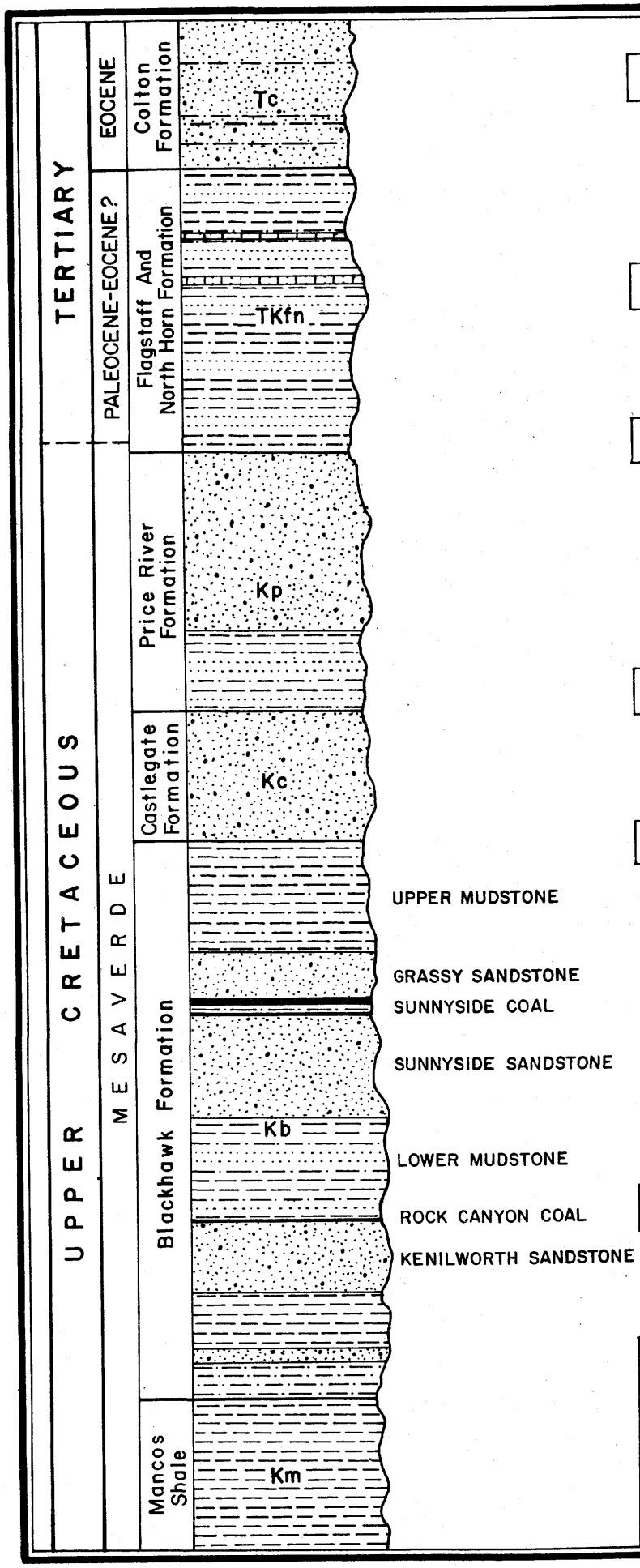
The Kenilworth Sandstone is composed of three sandstone tongues which thin eastward and are not traced east of Green River. The Lower Mudstone Member, a tongue of the Mancos Shale, is transitional upward into the Sunnyside Member.

The Rock Canyon coal bed is located at the base of the Lower Member where found.

The Sunnyside Member underlies the Sunnyside coal bed. The coal seam of the project vicinity has been correlated with both the upper and lower Sunnyside seam found to the north of the project area. For the project area the coal seam is referred to as the Sunnyside seam with a lower seam found in the southern margins of the area. Overlying the Sunnyside coal is the Grassy Sandstone Member, Young (1955). The Upper Mudstone Member contains numerous thin discontinuous coal seams near the top which become the Beckwith coal zone further east (Figure VI-1).

The Castlegate Sandstone is approximately 170 feet thick in the project area and forms abrupt cliff and sandstone dip slopes (Figure VI-2).

The Price River Formation lies above the Castlegate Sandstone. In the project vicinity it is divided into the upper Bluecastle Sandstone Member, 75 to 250 feet thick; and mudstone member, 100 to 400 feet thick.



DESCRIPTION OF UNITS

Tc — COLTON FORMATION: Upper Member - Sandstone and siltstone beds mostly maroon; forms cliffs and very steep slopes. Lower Member - Channel-fill deposits, lens-shaped siltstone deposits interbedded with mudstones; mostly gray and maroon; beds thinner than in the Upper Member; forms ledges and steep slopes. Thickness of formation: Up to 3,000 feet.

TKfn — FLAGSTAFF LIMESTONE AND NORTH HORN FORMATION: Interbedded siltstone, sandstone, mudstone, and limestone; beds mostly thin and lens-shaped; forms gentle slopes and ledges. Limestone beds rich in invertebrate fossils. Thickness of formation: 300 to 350 feet.

Kp — PRICE RIVER FORMATION: Bluecastle Sandstone Member - Fine- to medium-grained sandstone; a single bed composed of fluviatile, channel-fill deposits; forms cliffs and ledges. Mudstone Member - Interbedded and discontinuous mudstone, siltstone, and sandstone; mostly dark gray to dark brown; forms slopes and low ledges. Locally contains vertebrate fossils. Thickness of formation: 275 to 300 feet.

Kc — CASTLEGATE SANDSTONE: Fine- to medium-grained sandstone; local concentrations of clay galls at various horizons; forms high, abrupt cliffs and bare sandstone dip slopes. Thickness of formation: 145 to 160 feet.

Kb — BLACKHAWK FORMATION: Upper Mudstone Member - Mudstone and discontinuous sandstone, siltstone, and claystone; Grassy Sandstone Member - Fine to medium salt and pepper sand; Sunnyside coal. Sunnyside Sandstone - Arenaceous siltstone and very fine-grained to medium-grained sandstone, grading downward from coarser to finer; forms cliffs; sharp upper contact; transitional lower contact. Lower Mudstone Member - Mudstone and discontinuous siltstone, sandstone, and claystone; Rock Canyon coal bed at base. Kenilworth Member - Siltstone and very fine-grained to medium-grained sandstone; forms lower part of Book Cliffs. Thickness of formation: 550 to 600 feet.

Km — MANCOS SHALE: Dark gray fissile mudstone containing discontinuous layers of claystone and limy concretions. Intertongues with lower members of the Blackhawk Formation. Thickness of formation: 3,000 to 4,000 feet.

GEOLOGIC DESCRIPTIONS DERIVED FROM USGS MAP I-798, 1974

KAISER STEEL CORPORATION

GENERALIZED LITHOLOGIC SECTION

MINE PLAN AREA

EMERY COUNTY, UTAH

1981

Figure VI-1

6.4 Cont.

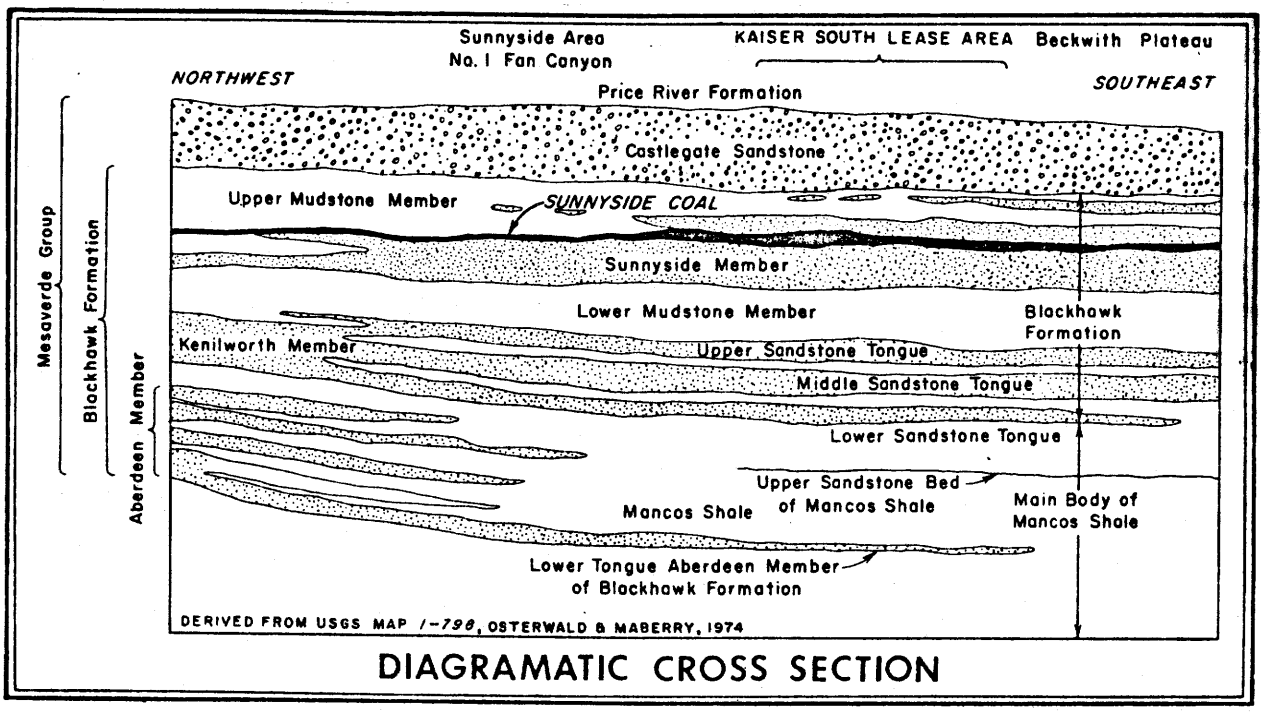


Figure VI-2 - Stratigraphic Relationship - Sunnyside Mining District

6.4 Cont.

Tertiary strata successively overlying the Price River Formation include the Flagstaff Limestone and North Horn Formation, 500 to 800 feet thick. The Colton Formation caps the highest ridges in the project vicinity and consists of maroon sandstone and siltstones, and gray mudstones.

6.4.2 Structure

The strata dip generally eastward from less than four degrees to seven degrees except in the vicinity of some faults where the dips may be greater than seven degrees (Figure VI-3). The dips decrease eastward, at least at the surface, to average about four degrees (Doelling, 1972). The main faults were mapped by Dunrud and Barnes (1972) and Osterwald and Mayberry (1974) and are shown on Plate VI-1. The fault displacements range from a few feet up to 275 feet. Detailed mapping by Kaiser Steel Corporation consultants note some differences in interpretation of fault alignments than those shown on the published maps (Plate VI-2).

6.4 Cont.

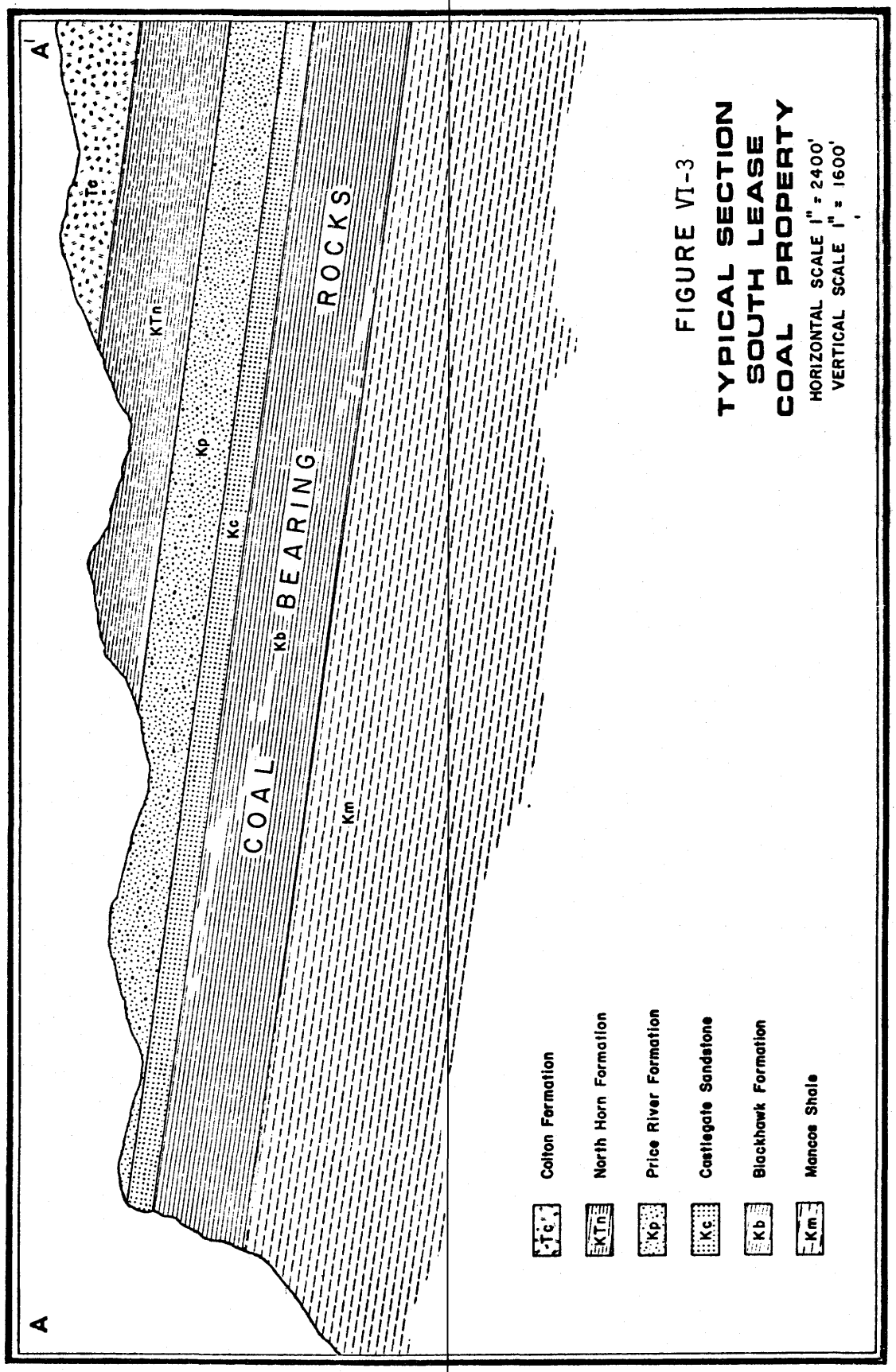


FIGURE VI-3
TYPICAL SECTION
SOUTH LEASE
COAL PROPERTY
HORIZONTAL SCALE 1" = 2400'
VERTICAL SCALE 1" = 1600'

6.5 Geology of Coal Bed and Adjacent Units

6.5.1 Exploration and Drilling

Kaiser Steel Corporation has conducted several exploration programs on the leasehold commencing in 1948 (Figure VI-4). Highlights of the programs are summarized in the following paragraphs.

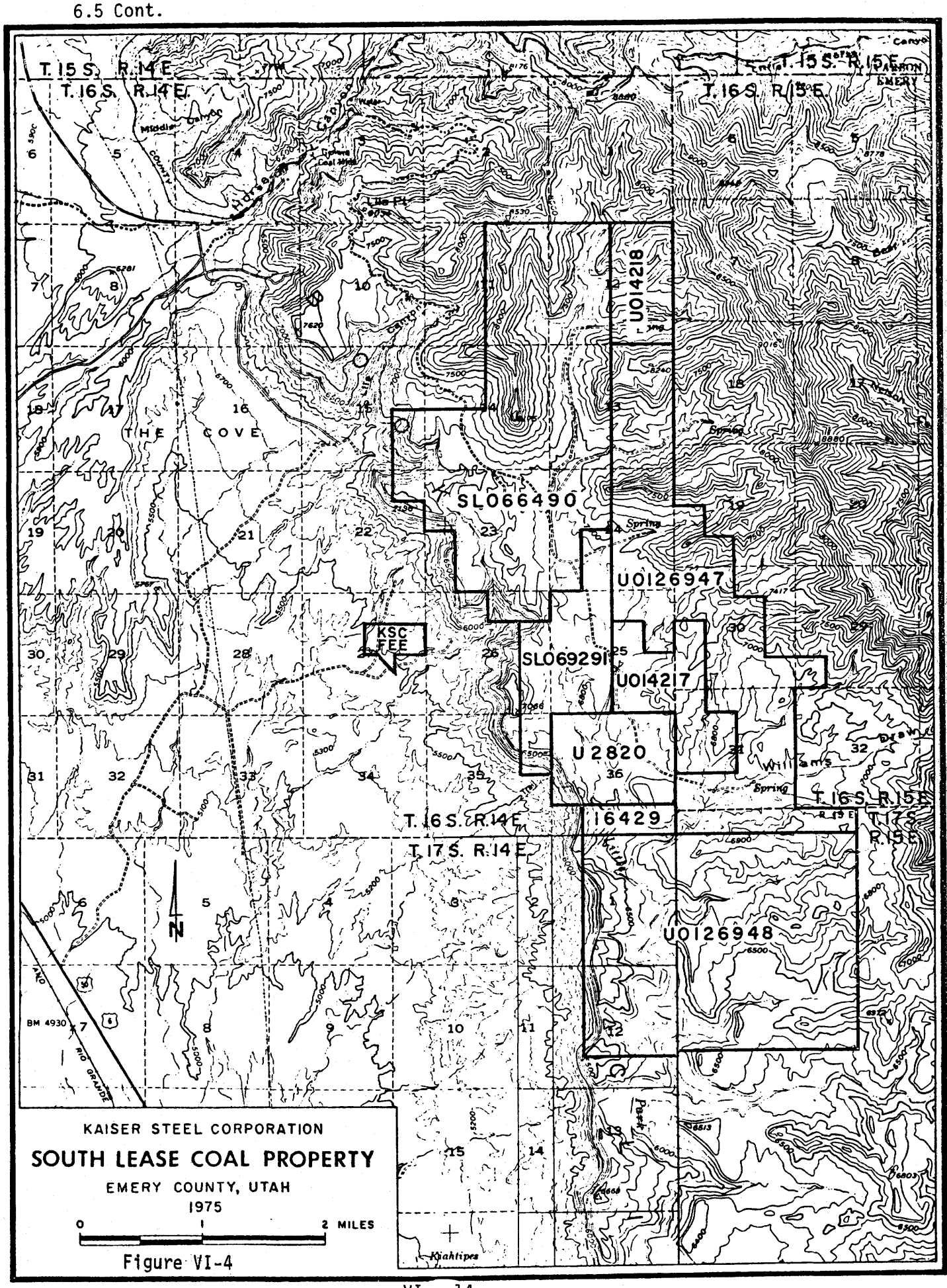
1948 to 1949: Four drill holes were completed following acquisition of the first leases. Geological and coal analytical data were obtained.

1957 to 1962: Two holes were completed and the last of the eight contiguous coal leases was acquired.

In addition to the drilling, an exploration test entry was driven 6,080 feet into the property from U. S. Steel's Geneva Mine. A total of 120,000 tons of coal was extracted from the workings and used for coke-making. The entry was halted when a fault having a displacement of approximately 50 feet was encountered. The entry is now sealed and a recent roof fall in the Geneva Mine has made these entries inaccessible. Geological, analytical, and mining data were acquired.

1974 to 1975: A major exploration program was completed consisting of 17 new core holes and one redrilled hole (S-5B) totaling 23,000 feet. Plate VI-2. During this program, core samples were obtained, 18 of which were from the main Sunnyside seam. Core recovery for these samples was 95 percent. No raw proximate analysis was done on the samples, only washability studies. The drilling data from the above programs are presented on Table VI-1. Outcrop measurements were also taken during the program and are summarized on Table VI-2. Infrared, color, and black-and-white aerial photography was obtained. A

6.5 Cont.



KAISER STEEL CORPORATION

SOUTH LEASE COAL PROPERTY

EMERY COUNTY, UTAH

1975

0 1 2 MILES

Figure VI-4

Table VI-1

DRILL HOLE SUMMARY

SOUTH LEASE COAL PROPERTY

1974-75

Drill Hole	Coordinates Latitude	Coordinates Departure	Collar Elevation	Total Depth	Main Seam Depth	Main Seam Elevation	Main Seam Thickness	Seam Separation	Lower Seam Depth	Lower Seam Elevation	Lower Seam Thickness
S-1	S916	E63257	6,960'	999'	960' 6"	5,999' 6"	17' 1"				
S-2	S3001	E65668	6,825'	1,000'	973' 9"	5,851' 3"	11' 6"				
S-3	N3678	E66213	7,070'	1,596'	1,567'	5,503'	13' 6"				
S-4	S12377	E69984	6,647'	1,055'	1,022' 8"	5,624' 4"	10' 4"	5' 1"	1,038' 1"		2"
S-5	S23972	E70942	6,152'	261'	212' 8-1/4"	5,939' 3-3/4"	7' 4-3/4"	17' 11-1/4"	238' 1/4"		3' 5"
S-6	S17396	E68485	6,380'	225'	194' 7"	6,185' 5"	13' 4"	----------Upper and Lower Seams Together----------			
S-7	S20423	E69541	6,282'	204.5'	166' 9-1/2"	6,115' 2-1/2"	6' 9-1/4"	8' 3-1/4"	181' 10"		4' 1-1/2"
S-8	S20880	E73512	6,480'	934'	887' 5"	5,592' 7"	7' 6"	14' 11-1/2"	909' 10-1/2"		4' 1"
S-9	S25013	E77309	6,345'	1,245'	1,149' 6"	5,195' 6"	4'				
S-10	S20562	E78251	6,530'	1,504'	1,459' 9"	5,070' 3"	4' 3-1/2"				
S-11	S14129	E71718	6,558'	915'	869' 4"	5,688' 8"	8' 2-1/2"	15' 8-1/4"	893' 2-3/4"		2' 6"
S-12	S17057	E72439	6,597'	954.5'	918' 1-3/4"	5,678' 10-1/4"	8' 2-3/4"	11' 1/2"	937' 4"		3' 4-3/4"
S-13	S13478	E75340	6,715'	1,551'	1,521' 4"	5,193' 8"	6' 1-1/2"	15' 1"	1,542' 7-1/2"		1' 6-3/4"
S-14	S17429	E76268	6,630'	1,430'	1,396' 7-1/2"	5,233' 4-1/2"	5' 1"				
S-15	S8662	E68442	6,668'	974'	934' 10-3/4"	5,733' 1-1/4"	11' 2"				
S-16	S5550	E71238	6,850'	1,600'	1,567'	5,283'	11' 5-1/2"				
S-17	S2542	E70549	7,028'	1,738'	1,706' 4-3/4"	5,321' 7-1/4"	13' 7"				
S-18	N979	E69923	7,105'	1,920'	1,885' 3-1/2"	5,219' 8-1/2"	13' 6-1/2"				
S-19	N7539	E67056	7,237'	2,095'	2,060' 7"	5,176' 5"	13' 7-1/2"				
S-20	N524	E66671	6,957'	1,399'	1,365' 1/2"	5,591' 11-1/2"	13' 3-1/2"				
S-21	S6375	E67844	6,782'	1,107'	1,077' 6"	5,704' 6"	13' 1-1/2"				
S-22	S9841	E72247	6,720'	1,451'	1,419'	5,301'	11' 3-1/2"	8' 3-1/2"	1,438' 7"		1'
S-23	S11332	E74160	6,710'	1,615'	1,585' 5-1/2"	5,124' 6-1/2"	10' 6"	6' 6"	1,602' 6-1/2"		1' 9"

6.5 Cont.

TABLE VI-2

OUTCROP PROSPECT SUMMARY

South Lease
Emery County, Utah

KAISER STEEL CORPORATION

Outcrop Prospect No.	Coal Thickness (Ft.)
OC-01	12.0
OC-1a	10.1
OC-1b	9.2
OC-02	12.25
OC-2	10.3
OC-03	11.4
OC-3	8.8
OC-3a	10.2
OC-4	10.8
OC-6	8.1
OC-7	8.7
OC-8	5.0
OC-9	4.3
OC-9a	8.0
OC-9b	5.0
OC-10	5.5
OC-11	5.6

6.5 Cont.

detailed investigation of the surface geology was made and results presented in a Kaiser Steel report by V. W. McMath, "Surface Geology of Kaiser Steel's South Lease Coal Property, Emery County, Utah." Kaiser Steel's Exploration and Mineral Processing Departments compiled the results and interpretation of all the exploration data to date in a report titled, "Exploration 1974-75 of Kaiser Steel's South Lease Coal Property, Emery County, Utah."

1980 to 1981: Plans to exploit the coal reserve were commenced with feasibility and preliminary mine planning. Eight core holes were drilled to confirm reserves and to examine key points in the proposed initial mine area including: shaft site, rock tunnel line at shaft site and seam intersection and main haulageway intersections. Results of the drilling are summarized in Table VI-3.

In 1981, one core hole (S-32) was drilled and converted to a downdip water monitoring hole (Section 6.5.4). A series of short drill holes to determine the stream profile of Little Park Wash was completed. Two alluvial water monitoring holes were placed above and below planned mine facilities, and three crest staff gages were placed in Little Park Wash and Williams Draw Wash.

6.5.2 Stratigraphy

The Upper Cretaceous Mesa Verde group of strata are of the greatest interest in the project area. The Mancos Shale at the base of the cliffs is overlain by the Blackhawk Formation which contains the Sunnyside and other coal seams. In the Little Park Wash area are exposures of the Price River and North Horn Formations. Farther east and at higher elevations are deeply

TABLE VI-3

KAISER STEEL CORPORATION

1980 DRILLING PROGRAM

DRILL HOLE DATA

DRILL HOLE	ELEVATION (Ft.)	SUNNYSIDE MINE GRID COORDINATES SOUTH (Ft.)	EAST (Ft.)	SLB&M SEC.	TWP.	RANGE	LOCATION (Ft.)	DATE STARTED	DATE COMPLETED	DATE CEMENTED	ROCK BITTED INTERVAL (Ft.)	CORED INTERVAL (Ft.)	TOTAL DEPTH (Ft.)	E-LOG	FEDERAL LEASE NO.	STATE LEASE NO.
KSC-S-24-80	6,429.45	16,197.1	67,463.7	1	17S	14E	620 FNL-3,260 FEL	7-14-80	7-16-80	8-12-80	0-20 170-450	20-170 450-550	550	X	U-0126948	-
KSC-S-25-80	6,497.42	17,145.4	69,601.4	1	17S	14E	1,580 FNL-1,120 FEL	7-17-80	7-19-80	8-13-80	0-390	390-568	568	X	U-0126948	-
KSC-S-26-80 2/	6,470.86	14,377.4	68,002.8	36	16S	14E	1,190 FSL-2,880 FEL	8- 1-80	8- 1-80	8-13-80	0-280	280-350	350	X	-	ML-16429
A-26 1/	6,471.00			36	16S	14E	9'S 57E from S-26	8-13-80	8-13-80	-	0-21	-	21	-	-	ML-16429
KSC-S-27-80	6,309.52	19,265.1	69,872.0	1	17S	14E	1,960 FSL-850 FEL	7-12-80	7-13-80	8-11-80	0-205	205-280	280	X	U-0126948	-
KSC-S-28-80 2/	6,203.46	22,375.9	69,897.3	12	17S	14E	1,160 FNL-740 FEL	8- 2-80	8- 4-80	8-11-80	0-115	115-156	156	X	U-0126948	-
A-28 2/	6,203.00			12	17S	14E	5.8'S 86E from S-28	8-11-80	8-11-80	8-11-80	0-70	-	70	-	U-0126948	-
KSC-S-29-80	6,735.82	14,609.8	70,213.4	36	16S	14E	960 FSL-670 FEL	7-27-80	7-29-80	7-30-80	0-820	820-894	894	X	-	ML-16429
KSC-S-30-80	6,729.63	16,298.3	70,709.2	6	17S	15E	1,820 FNL-5 FWL	7-19-80	7-11-80	8-13-80	0-850	850-895	895	X	U-0126948	-
KSC-S-31-80 2/	6,354.34	18,721.4	71,056.0	6	17S	15E	1,150 FSL-350 FWL	8- 4-80	8- 5-80	8-10-80	0-450	450-495	495	X	U-0126948	-
A-31 1/	6,354.00			6	17S	15E	18.8'N 84W from S-31	8-10-80	8-10-80	-	0-20	-	20	-	U-0126948	-

1/ Established as water observation hole in surface alluvium.
2/ Unsuccessful water observation hole.

Revised 10/22/80

6.5 Cont.

eroded areas of the Tertiary Colton Formation. The stratigraphic sequence with formational descriptions are shown on Figure VI-1.

The Sunnyside main seam is of primary interest in the MPA. This seam contains more than 90 percent of the in-place reserves, extends over the entire property and varies in thickness from 45 inches to more than 18 feet. Average coal thickness for the coal seam is 9.9 feet. The highest coal occurs in the northern two-thirds of the MPA (Plates VI-3 and VI-3A). South of Williams Draw, the main seam thins and a lower seam, which is local in area, occurs. The lower seam ranges in thickness from zero to 5.7 feet and is separated from the main seam by 2.7 feet to more than 15 feet (Plate VI-4). The true relationship of the lower seam and Sunnyside main seam is not clear.

The coal is relatively hard and bright, with about 20 percent thin to medium dull bands. It has a moderately well-developed cleat. Thin coatings of calcite occur on some cleat faces. Pyrite occurs in thin surface coatings and occasional nodules. Resin blebs are common.

Some thin partings are present in the Sunnyside main coal seam.

Overlying the Sunnyside coal is the Grassy Sandstone unit of Young (1955). The Unit is comprised of 40 to 70 feet of fine- to medium-grained sandstone which rests directly on the coal over the southern three-fourths of the property. In the north, this sandstone is separated from the coal by up to four feet of carbonaceous mudstone and siltstone.

The upper and lower few feet of the sandstone are thinly interbedded with carbonaceous siltstone. The sandstone is commonly crossbedded and tight,

6.5 Cont.

however the lower portion has been reworked. The reworked section varies in thickness for each drill hole. Few pyrite nodules were noted in cores. Usually, the contact with the coal is sharp or well-defined. Near the southeastern corner of the lease, a gradational contact is common.

The rock section between the Sunnyside main seam and lower seam in the south is composed of a sequence of siltstone, sandstone, and carbonaceous mudstone. The upper portion of this unit, or floor rock of the upper coal, is generally mudstone with some siltstone, slightly carbonaceous, commonly with well-developed planar parting. Highly carbonaceous or coaly mudstone forms the lower section of the parting, or roof rock of the lower coal. The interval between these is a very fine- to medium-grained sandstone, often interbedded with shale. Sandstone contacts with the upper shale and lower mudstone are sharp.

The floor rock of the main seam in the central part of the property consists of an interval of up to 20 feet of shale and mudstone, grading down to thinly interbedded sandstone and mudstone. The deeper coal in the north and east rests directly on the massive Sunnyside Sandstone (Plate VI-5).

6.5.3 Structure

(a) Topographic Setting

The coal seams outcrop in the Book Cliffs escarpment 550 to 700 feet from the base of the cliffs and dip uniformly 11 to 14 percent to the east. At the base of the cliffs, the average elevation is 5,500 to 6,000 feet, while the elevation of Little Park, which constitutes most of the MPA, ranges from 6,200 and 7,000 feet. The highest prominence on the property is 8,516 feet on the north boundary line above Lila Canyon.

6.5 Cont.

(b) Overburden

The low relief of Little Park places the coal, for the most part, under less than 1,500 feet of cover. The deeper coal is generally in the eastern and northern portions of the property, with a small amount of reserve being deeper than 2,500 feet (Plates VI-2 and VI-6). In the initial mine area, the overburden ranges from 40 feet locally to about 825 feet.

(c) Faulting

In the Mine Plan Area, a major system of transverse, easterly trending normal faults, radial from the San Rafael Swell, have been mapped. Generally, the pattern is that of a series of horsts and grabens. Vertical displacements of the faults range from 15 feet to more than 200 feet with displacement diminishing toward the east. Near some of these major breaks, surface expressions of en-echelon multiple and auxiliary fault sets with small displacements are common. Fault data obtained during the 1974-75 exploration are summarized in the following: Table VI-4, Figures VI-5 and VI-6, and Plates VI-2 and VI-6.

The east-west trending primary faults have divided the lease into several blocks. With the absence of major disruptions along the strike, these blocks extend 9,000 to 13,000 feet from the outcrop to the easterly property boundary line and vary from 3,200 to 12,000 feet in width (Figure VI-6 and Plate VI-2).

Vertical displacements as long as 205 feet have been measured at the outcrop in these major faults. Drilling has disclosed displacements in two of these--the South Boundary fault and Williams Draw fault--to diminish toward the east, while the Entry fault (Figure VI-7)--displaced 50 feet in the central part of the lease--may disappear before reaching the outcrop and easterly Lease boundary line.

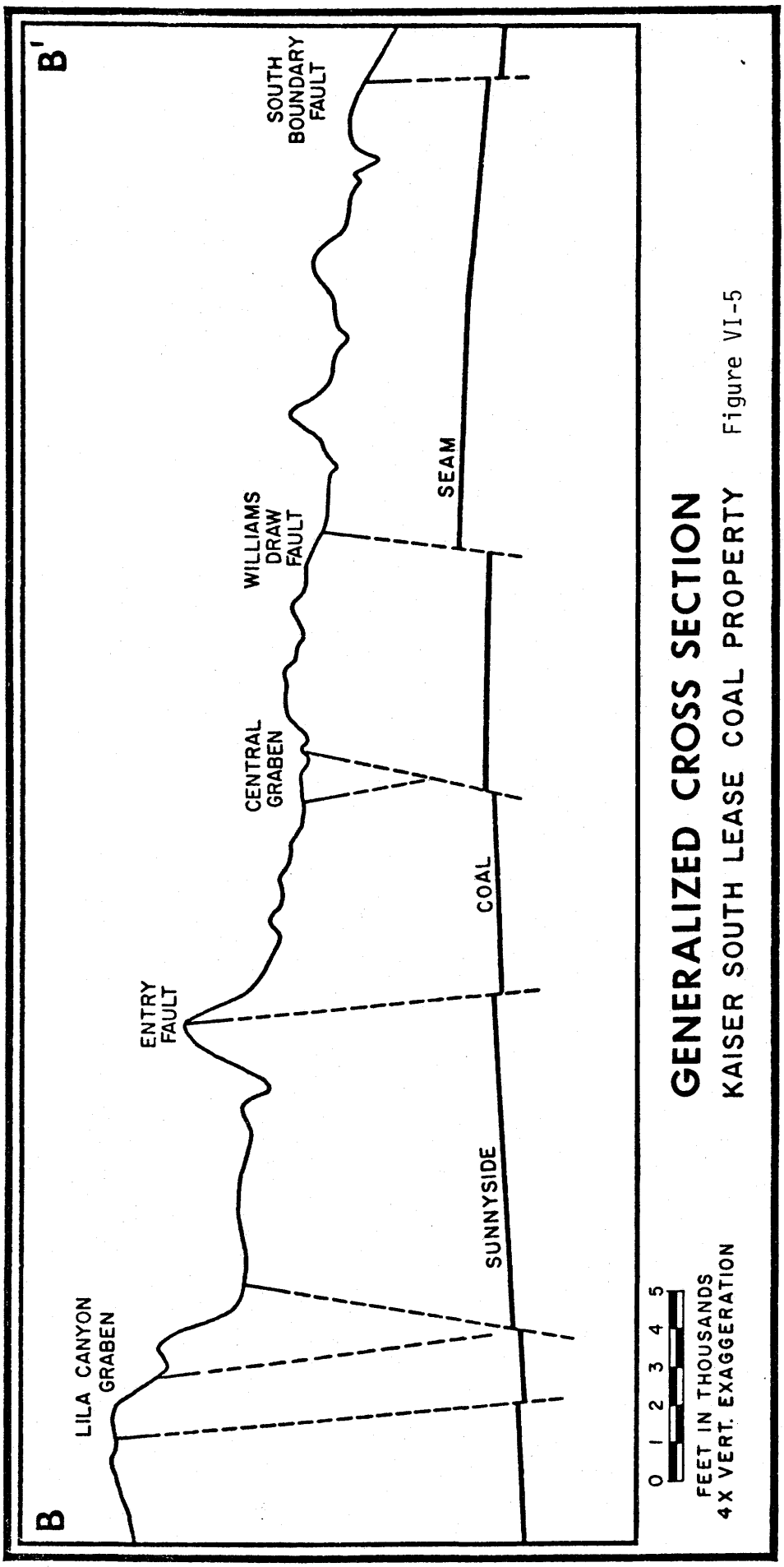
6.5 Cont.

TABLE VI-4

MAJOR SOUTH LEASE FAULTS

	Strike	Range of Dips	Displacement West	Displacement Middle	Displacement East
North Lila Canyon	N10°E	S70°	13'	42'	?
Middle Lila Canyon	N 7°E	S70°	8'	10'	?
South Lila Canyon	N89°E	N60°	17'	25'	?
Entry	S85°E	S55-30°	0'	50'	0'
Cliffs Graben	Apparently does not extend into the Lease				
Central Graben Auxiliary	N87°E	S87-60°	205'	0'	-
Central Graben Main	N82°E	N52-77°	145'	50'	40'
Williams Draw	S88°E	N56-68°	195'	125'	50'
South Boundary	S84°E	S81-78°	72'	45'	15'

6.5 Cont.



GENERALIZED CROSS SECTION
KAISER SOUTH LEASE COAL PROPERTY

Figure VI-5

6.5 Cont.

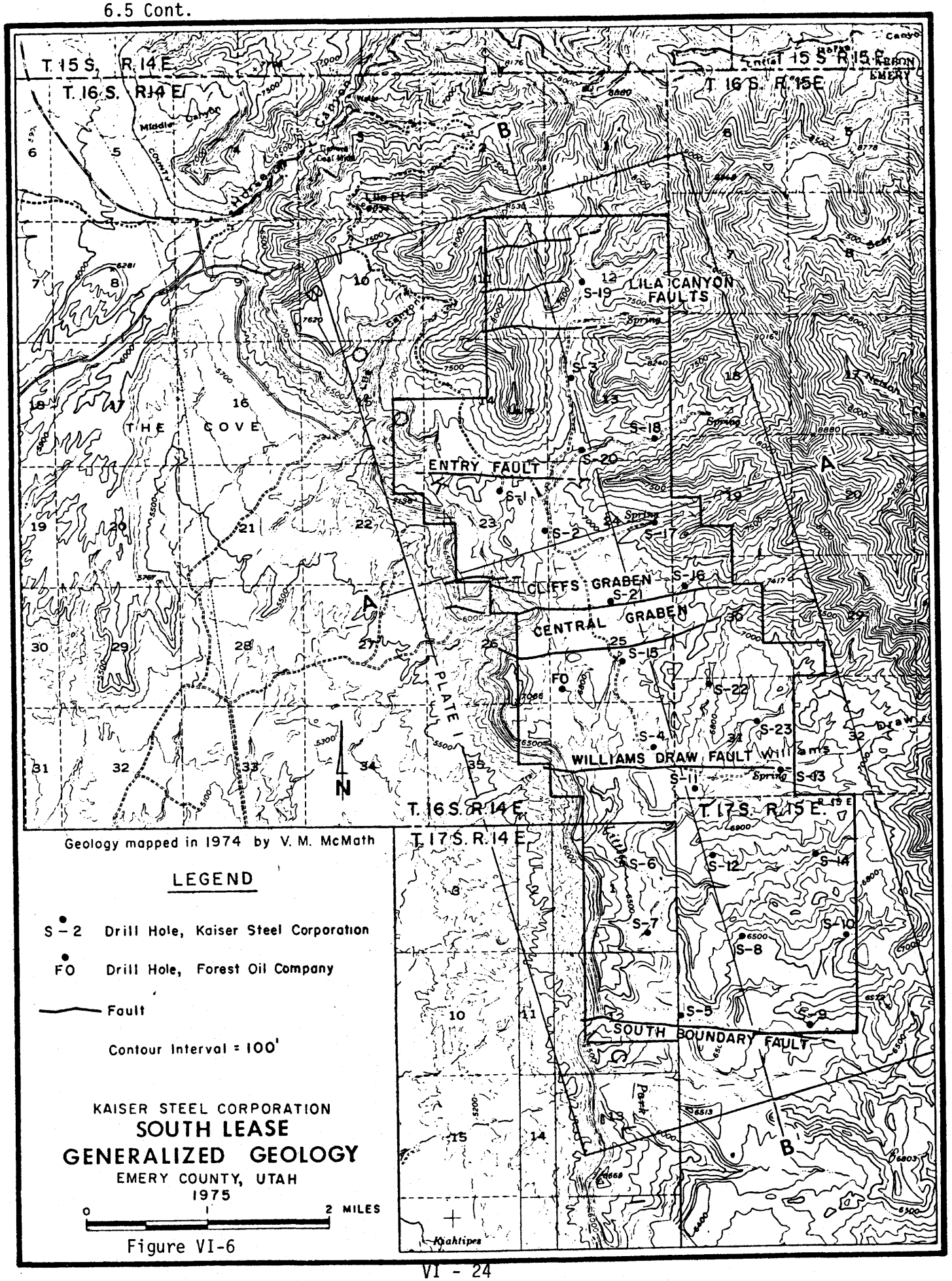
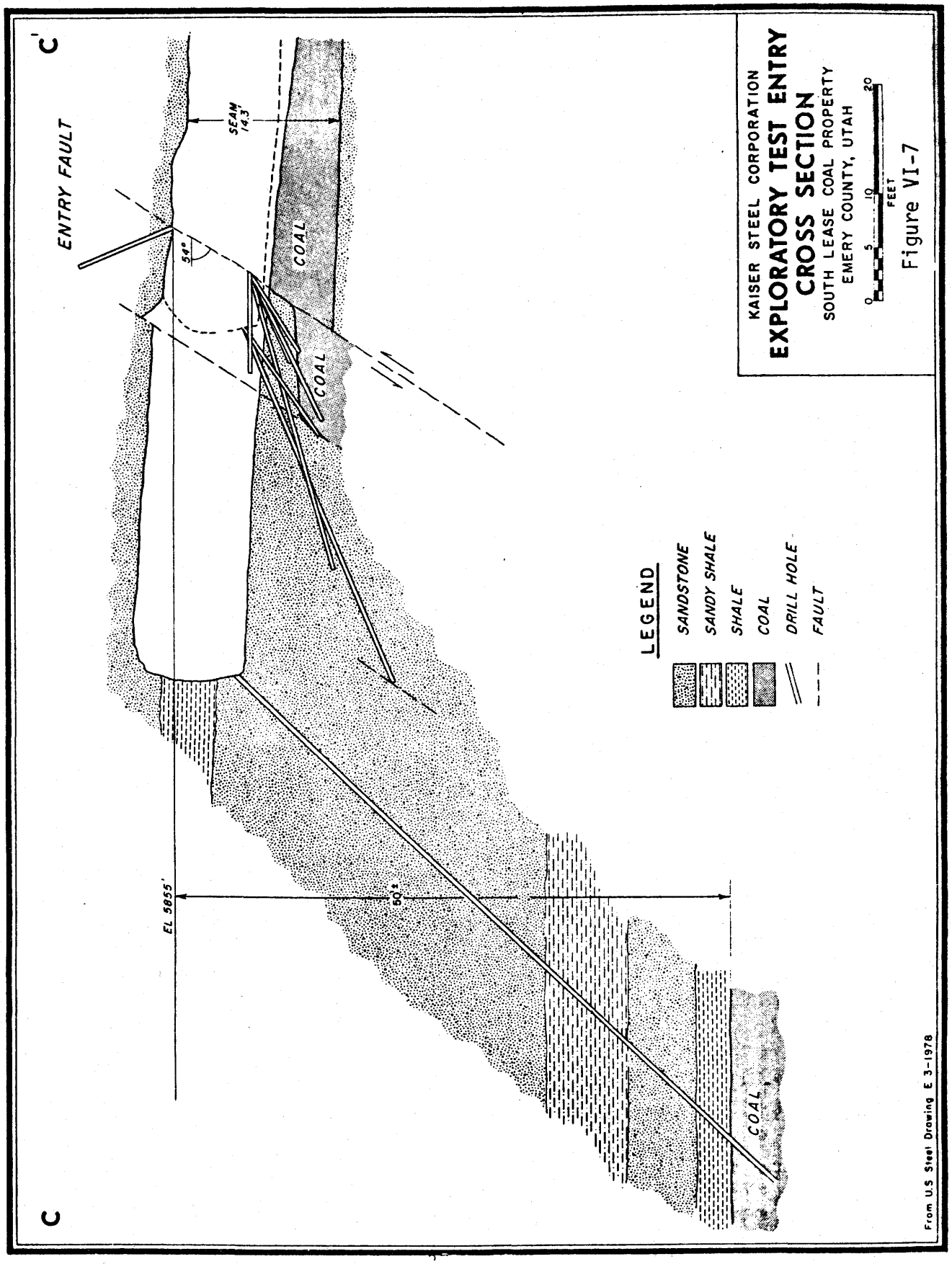


Figure VI-6

6.5 Cont.


C
C'
ENTRY FAULT
SEAM 14.3'
54°
COAL
COAL
EL 5855'
50'
COAL
LEGEND
SANDSTONE
SANDY SHALE
SHALE
COAL
DRILL HOLE
FAULT
KAISER STEEL CORPORATION
EXPLORATORY TEST ENTRY
CROSS SECTION
SOUTH LEASE COAL PROPERTY
EMERY COUNTY, UTAH
0 5 10 20
FEET
Figure VI-7
From U.S. Steel Drawing E 3-1978

6.5 Cont.

The fault set defining the Central Graben disrupts the coal from the outcrop down-dip for approximately 5,000 feet. The possible complex nature of the structure in this block, due to secondary faulting and fracturing, may affect recovery of the coal.

The Lila Canyon faults, which were intercepted in the exploratory entry, appear to be increasing in vertical displacement toward the east. Structure contours drawn from drill hole S-19 and mine data show the block north of the south Lila Canyon fault to be lower than indicated by surface mapping of the fault lines. The suspected close proximity of the southeasterly trending faults in the Geneva Mine will require investigation prior to development of the Lila Canyon area.

No surface expression of the faults are visible in some parts of the Lease. On the basis of exposures at the escarpment, as well as in the nearby Geneva Mine, the fault traces were projected into areas where drilling has disclosed anomalies in the structure.

En-echelon faulting or fracturing near the major displacements is common in the Geneva Mine, particularly in the transverse fault systems. Roof falls have been abnormally high in these areas, even though the strata indicate competent roof rock. These failures may be aggravated by the water accumulation known to exist in the faults.

Auxiliary or branch faulting associated with the main faults is much less frequent than the multiple faulting; but, it does occur, most commonly with the low-angle faults.

6.5 Cont.

Undoubtedly, many small faults will be encountered in mining; nonetheless, future mine configurations will conform to the major fault patterns, with the large displacements of the faults providing natural barriers between mines.

(a) Burns

The South Lease coal has not been as extensively burned as have the seams on properties to the north. The central and southern cliff exposures in the Lease show no evidence of burn; however, a few areas along the outcrop near the northwest part of the Lease have been affected. No evidence of burning was found in the drill holes.

(b) Joints and Fractures

No detailed studies of the eroded joints exposed on surface rocks of the MPA have been made. Generally, the major trend of joint systems is N5 to 25°W, and N75 to 85°E. Dips range from about 70 degrees to vertical.

6.5.4 Detailed Columns of Interest, Maps and Cross Sections

The drawings listed below are included in this section because of their general application to the Initial Permit Area. Location of cross sections are shown on Figure VI-8.

Plate VI-7	Exploration, 1981. Location map.
Plate VI-8	Detailed (typical) drill logs of coal core holes S-32, S-27, and S-14 (see Plate VI-2 for location of S-14)
Plate VI-9	Cross Section of Main Access Slope
Plate VI-10	Cross Section of Little Park Wash Slope
Plate VI-11	East-West Cross Section
Plate VI-12	Typical Cross Sections of Little Park Wash

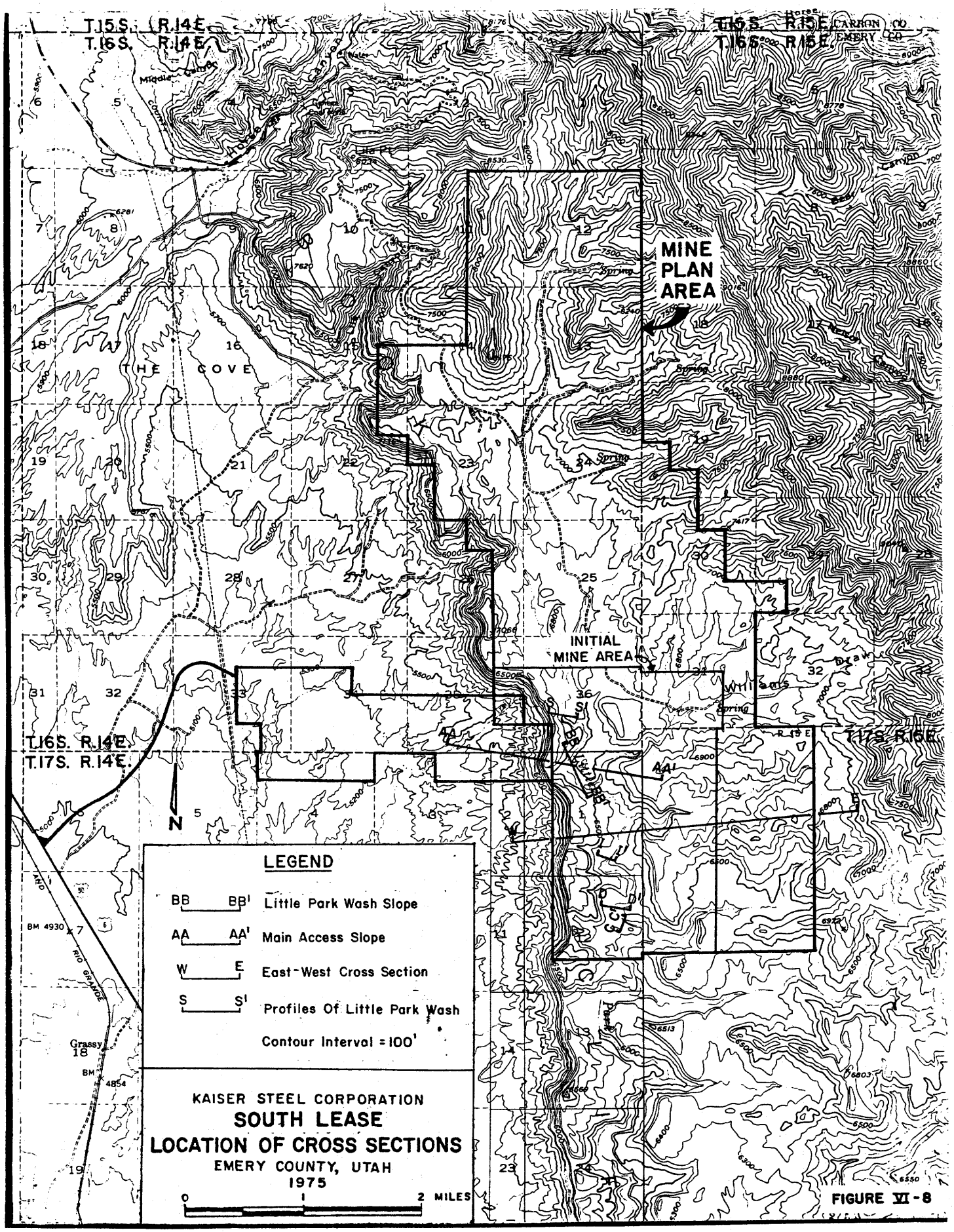

T.15S. R.14E.
T.16S. R.14E.
T.16S. R.15E.
CARBON CO
EMERY CO
MINE PLAN AREA
THE COVE
INITIAL MINE AREA
T.16S. R.14E.
T.17S. R.14E.
T.17S. R.15E.
N
LEGEND
BB BB' Little Park Wash Slope
AA AA' Main Access Slope
W E East-West Cross Section
S S' Profiles Of Little Park Wash
Contour Interval = 100'
KAISER STEEL CORPORATION
SOUTH LEASE
LOCATION OF CROSS SECTIONS
EMERY COUNTY, UTAH
1975
0 1 2 MILES

FIGURE VI-8

6.5 Cont.

6.5.5 Coal Reserves

The coal reserve of the MPA has been submitted to the Area Mining Supervisor, USGS, Salt Lake City, under the provisions of General Mining Order No. 1.

6.5.5.1 Reserve Calculations

Reserve calculation methods have been submitted to the USGS as part of General Mining Order No. 1.

6.5.5.2 Coal Quality and Characteristics, Sulfur Forms, Clay and Alkalinity

The average in-seam raw coal, based on core testing, contains 7.9% ash/1.09% total sulfur for the main seam and 9.3% ash/1.33% total sulfur for the lower seam, on dry coal basis. The low ash contents indicate that the coal seams are quite clean with very little shaly parting material.

Pyritic sulfur content generally constitutes about one-fourth to one-third of the total sulfur, averaging less than 0.35%. The balance is almost all organic sulfur since sulfate sulfur is negligibly low.

Total sulfur and forms of sulfur are determined following standard procedures established by the American Society of Testing and Materials (respectively ASTM D-3177 and D-2492). Total, pyritic and sulfate sulfur are actually analyzed with the organic sulfur calculated by difference.

Pyrite and marcasite are iron sulfide minerals having identical chemical compositions (FeS_2 with 46.6% Fe and 53.4% S). They cannot be distinguished by normal sulfur analysis procedures.

6.5 Cont.

Alkalinity should be quite low since water soluble alkalies average only 0.007% Na_2O and 0.002% K_2O on dry coal basis.

6.5.6 Adjacent Units (Overburden)

A description of the adjacent units may be found under Section 6.5.2 (Stratigraphy).

6.5.6.1 Rock Characteristics, Acid-toxic, Pyrite, Clay and Alkalinity

Over the southern three-fourths of the property, a fine- to medium-grained sandstone rests directly on the main seam coal. In the north, up to four feet of carbonaceous mudstone and siltstone separate the sandstone from the coal. The contact with the coal is usually sharp and well-defined.

The rock section between the main and lower seams in the south, where the lower seam is thicker, is composed of a sequence of siltstone, sandstone, and carbonaceous mudstone.

The 0.2 to 0.4-foot zone above the coal analyzes 80 to 90% ash with total sulfur generally less than that of the coal.

Extraction of the coal will be by underground mining. Similar mining in the Sunnyside area shows that the major portion of any out of seam rock that must be removed is disposed of in dry areas underground and will never reach the surface. A minor amount will be included with the mine-run coal as dilution rock.

Kaiser Steel's Sunnyside Mine is mining coal in the same horizons as those in the South Lease. Experience from over 80 years of operation at the Sunnyside Mine indicates that none of the horizons contains sufficient acid-forming

6.5 Cont.

alkaline or toxic materials as to be considered a problem in production or waste disposal. (Bureau of Land Management, Environmental Analysis Record, dated 6/9/76. Related to Kaiser Steel's Federal Lease No. U-32083.)

6.6 Geologic Effects of Mining

6.6.1 Mining Hazards

Mining hazards other than those normally associated with underground coal mining are not anticipated. Conditions are not expected to be significantly different than those associated with the Geneva and Sunnyside mines.

(a) Water

Subsurface water inflow associated with fault or fracture systems are possible, however, this potential is not expected in the initial permit area.

(b) Gas

Gas in the Geneva mine has not been a problem although an increase has been detected as mining reaches deeper levels--over 2,000 feet.

In view of the relatively low cover over the MPA coal, and proximity updip to the outcrop, methane is not anticipated to be a problem.

(c) Seismic Disturbances

Coal mine bump phenomenon has long been observed in the Columbia-Geneva and Sunnyside mines. In the MPA where faults are closely spaced, highly stressed rock and coal are likely to occur (F. W. Osterwald and J. O. Maheny, 1974).

6.6.2 Surface Hazards

Surface subsidence can be expected in the MPA. The impact will vary with depth of overburden and mining methods, i.e. fuel extraction versus leaving of supports which will affect coal recovery. Provisions for protection of Little Park Wash are discussed in Chapter XII, Sections 12.2 and 12.3.

6.6 Cont.

The planned surface facilities in Little Park Wash should not create any surface hazards. Additional ventilation shafts will probably be required over the life of the mine.

6.6.3 Impacts of Mining

6.6.3.1 Subsurface Water

Subsurface water is not expected near the cliff escarpment. As mining progresses downdip, localized fracture systems and faults may contain substantial water. This water is thought to be in place with little or no recharge.

6.6.3.2 Toxic Wastes

Rock occurring above and below the coal seam other than that closely associated with the coal is not expected to be brought to the surface. Such waste rock, if removed, will be disposed of in worked-out areas of the mine.

A minor amount of rock will be included with the mine-run coal as dilution rock, some of which will be rejected as waste from the rotary breaker. This reject material will be stockpiled in a designated area on the surface.

As discussed in Section 6.5.6.1, toxic waste production is not anticipated.

6.6.3.3 Subsidence

Subsidence is expected during the life of the mine, however, there is not anticipated major effects due to subsidence during the permit term or thereafter. Surface subsidence effects on mining are discussed in Chapter XII Section 12.4. The subsidence control plan is discussed in Chapter III, Section 3.4.8.

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Chapter VII HYDROLOGY

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7.1 Groundwater Hydrology

7.1.0 Scope

This section on groundwater hydrology pertains primarily to requirements under UMC 783.4 (a) and 783.15.

In contrast to the midwestern and eastern United States, there are no extensive permanent water tables or aquifers in the semi-arid regions of the West. This is applicable to the South Lease Mine Plan Area (MPA).

Underground water is not expected within one-quarter mile of the cliff face and, as at the Sunnyside mines, most water flows encountered in mine workings are expected to decrease over a short period of time, indicating little if any recharge. An exception will be when mining near faults where moderate flows of water are expected.

Underground water, when encountered, will be sent to a sump from which it will be used in active mining areas for dust abatement, etc. Excess mine water will be pumped to the surface for use in the outside facilities. Unused excess mine water will be discharged and disposed of in compliance with applicable regulations.

7.1.1 Methodology

Information on groundwater hydrology has been derived from the following sources:

(a) Experience and records generated in many years of operating the Sunnyside mines by Kaiser Steel.

(b) Information obtained from drilling of 32 coal-core holes, surface observations, and information gained by Kaiser Steel from the exploratory test entry driven from the Geneva Mine into the South Lease.

7.1 Cont.

(c) Government publications such as the "Final Environmental Statement, Development of Coal Resources in Central Utah" by the U. S. Geological Survey (1979).[1]

7.1.2 Existing Groundwater Resources

7.1.2.1 Regional Groundwater Hydrology

Unconsolidated deposits of Quaternary age are the most permeable water-bearing formations in parts of the region; sandstone strata of Jurassic, Cretaceous, and Tertiary age contain potential aquifers.

The region is made up of three broad structural units referred to as the San Rafael Swell, Wasatch Plateau and Book Cliffs. Rocks of the Book Cliffs dip gently into the Uinta Basin. These structural and topographic units are, in turn, modified by numerous faults, folds, intrusions and fracture systems. Regional drainage systems have eroded deeply incised canyons in places. The upper exposed water-bearing units along cliff faces are discontinuous and partially void of water. [1]

In contrast to the midwestern and eastern United States, this semi-arid region of the West does not have extensive permanent water tables. In some western geological formations, saturation and presence of permanent aquifers may only occur at great depth. However, in the mountainous, deeply incised, low moisture areas such as those within the MPA, the water in the ground, if any, is mainly present in fractures of consolidated rock formations and in recent unconsolidated valley fill. The fracture systems may or may not be interconnected and rechargeable. In some lenticular and pervious facies of several

7.1 Cont.

geological formations, "hanging water tables" have developed. These are local in areal extent and can contain significant amounts of water, but may not be in a geographic situation where they will be recharged.

The recharge of the groundwater generally comes from spring snowmelts which feed perennial streams and from heavy summer thunderstorms. The alluvial fill and fault-fracture systems below the relatively few perennial streams may contain permanent groundwater. Since most of the stream courses contain water only occasionally, the recharge into the ground is unpredictable as to time and amount.

Potential water well yields from regional geologic units are shown on Figure VII-1.

7.1.2.2 Mine Plan Area Hydrology

(a) Groundwater Characteristics

Lithologic units found in the MPA are described in Figures VII-1 and VII-2 and Section 6.4.1. These units dip five to seven degrees eastward into the Uinta Basin. A series of east-west faults transverse the MPA. These faults, prominent on the cliff face, are believed to progressively decrease in displacement eastward away from the cliffs and die out eastward on the MPA. Details of faults and joints are discussed in Section 6.5.3.

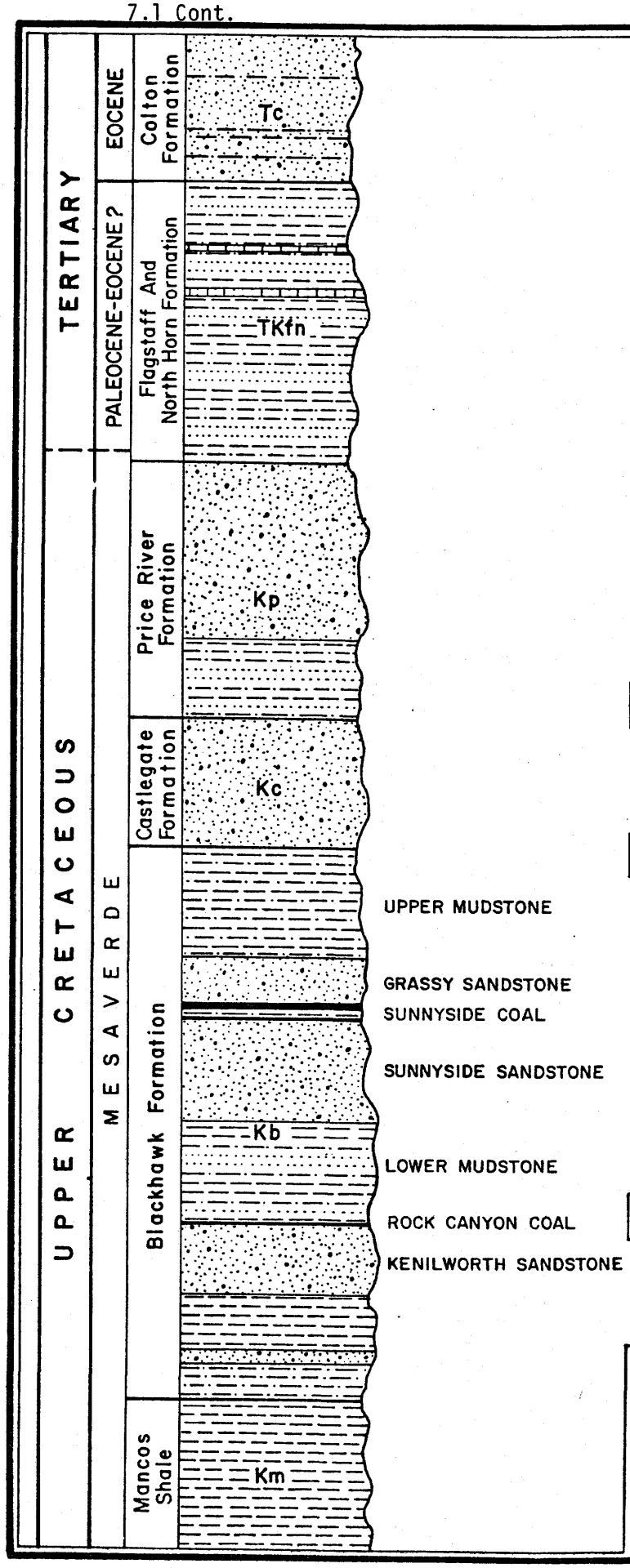
Potential aquifers of the MPA above the Sunnyside coal zone include the Colton Formation, Flagstaff and North Horn Formation, Bluecastle Sandstone Member of the Price River Formation, Castlegate Sandstone, and Grassy Member of the Blackhawk Formation. The Sunnyside and Kenilworth Sandstone Members of the Blackhawk Formation lie below the Sunnyside coal zone (Figure VII-2).

EXPLANATION	WATER-BEARING PROPERTIES
Quaternary gravel surfaces, mainly terraces and pediments undergoing erosion. May not be associated with active streams	Quaternary sediments—Low to high permeability. Generally yield 10 to 500 gal/min; locally more than 500 gal/min to wells and springs in valley fill
Tertiary volcanic rocks, undifferentiated	Tertiary sedimentary and volcanic rocks—Permeability generally low to moderate in sandstone but locally high where fractured; low to moderate in rubble and cinders (openings contain fine-grained sediments in places) locally very high in limestone solution channels and fractures. Potential well yields generally 5 to 50 gal/min, locally more than 100 gal/min; limestone solution channels and fractures may yield more than 500 gal/min locally
Tertiary mafic intrusive rocks, dikes and sills	
Tertiary sedimentary rocks Green River Formation, as much as 2,400 feet of lacustrine shale and siltstone Colton Formation, 300 to 1,500 feet fluvial red beds with channel sandstone Flagstaff Limestone, 200 to 1,500 feet of yellow-gray to cream limestone North Horn Formation (Lower Tertiary-Upper Cretaceous(?), 500 to 2,500 feet of fluvial sandstone and mudstone Tuscher Formation (Lower Tertiary-Upper Cretaceous(?), 130 to 600 feet of conglomeratic fluvial sandstone	
Cretaceous sedimentary rocks Upper coal-bearing sequence Price River Formation of Mesaverde Group, 600 to 1,000 feet of fluvial and marine interbedded sandstone and mudstone(Farrer, *coal*-bearing Neslen and Sego Formations in Sego coal field) Castlegate Sandstone of Mesaverde Group, 150 to 500 feet of cliff forming, light-colored deltaic sandstone Blackhawk Formation of Mesaverde Group, 700 to 1,500 feet of sandstone, mudstone, shale and *coal*: chief coal producing formation in Utah	Cretaceous sedimentary rocks, upper coal-bearing sequence—Moderate permeability in sandstone and conglomerate, particularly along bedding planes, high permeability where fractured. Potential well yields generally 5 to 50 gal/min in sandstones and fractured conglomerates
Lower coal-bearing sequence Star Point Sandstone of Mesaverde Group, 90 to 1,000 feet of interbedded light-colored sandstone and gray marine shale *Masuk Shale Member of Mancos Shale, 300 to 1,300 feet of gray marine shale Emery Sandstone Member of Mancos Shale, 50 to 800 feet of light-colored marine sandstone: non-marine with *coal* in southern part of Wasatch Field *Blue Gate Shale Member of Mancos Shale, 1,500 to 2,400 feet of light-colored marine shale Ferron Sandstone Member of Mancos Shale, 50 to 950 feet of alternating yellow-gray sandstone, sandy shale and gray shale with important *coal* beds *Tununk Shale Member of Mancos Shale, 400 to 650 feet of gray marine siltstone and claystone Dakota Sandstone, 0 to 60 feet of light-colored conglomeratic sandstone with minor *coal*	Cretaceous sedimentary rocks, lower coal-bearing sequence—Permeability in upper sandstones moderate to high, in lower sandstones low to moderate; potential well yields 5 to 50 gal/min. Shales, permeability low, not significant as a source of water
Pre-Cretaceous sedimentary rocks Morrison Formation (Upper Jurassic), 0 to 630 feet of sandstone and bentonitic mudstone Summerville Formation (Upper Jurassic), 0 to 200 feet of thin-bedded siltstone, locally gypsiferous Curtis Formation (Upper Jurassic), 0 to 200 feet of fine-grained sandstone and siltstone Entrada Sandstone (Upper Jurassic), 0 to 1,000 feet of siltstone and sandstone Carmel Formation (Middle Jurassic), 0 to 1,000 feet of siltstone, sandstone, limestone, and gypsum Navajo Sandstone (Triassic(?) and Jurassic), 500 to 2,000 feet of cliff-forming sandstone Kayenta Formation (Upper Triassic(?)), about 260 feet of sandstone, siltstone, and shale; minor amounts of limestone Wingate Sandstone (Upper Triassic(?)), 0 to 430 feet of cliff-forming sandstone Chinle Formation (Upper Triassic(?)), 430 feet to 1,300 feet of sandy, limy, muddy, and bentonitic rocks Moenkopi Formation (Lower and Middle(?) Triassic), 100 to 1,100 feet of shale, sandstone, limestone and evaporites	Pre-Cretaceous sedimentary rocks—Potential well yields form the Navajo Sandstone stone generally less than 100 gal/min but may be as much as several hundred gal/min in places. Other formations—potential yield little or no water (generally less than about 50 gal/min) from sandstones and fractures, no yields from shale and dense limestone

*Special engineering procedures required in construction of surface facilities

Figure VII-1 Geologic Units and Water Bearing Properties, South Lease Coal Property Vicinity

7.1 Cont.



DESCRIPTION OF UNITS

Tc — COLTON FORMATION: Upper Member - Sandstone and siltstone beds mostly maroon; forms cliffs and very steep slopes. Lower Member - Channel-fill deposits, lens-shaped siltstone deposits interbedded with mudstones; mostly gray and maroon; beds thinner than in the Upper Member; forms ledges and steep slopes. Thickness of formation: Up to 3,000 feet.

TKfn — FLAGSTAFF LIMESTONE AND NORTH HORN FORMATION: Interbedded siltstone, sandstone, mudstone, and limestone; beds mostly thin and lens-shaped; forms gentle slopes and ledges. Limestone beds rich in invertebrate fossils. Thickness of formation: 300 to 350 feet.

Kp — PRICE RIVER FORMATION: Bluecastle Sandstone Member - Fine- to medium-grained sandstone; a single bed composed of fluviatile, channel-fill deposits; forms cliffs and ledges. Mudstone Member - Interbedded and discontinuous mudstone, siltstone, and sandstone; mostly dark gray to dark brown; forms slopes and low ledges. Locally contains vertebrate fossils. Thickness of formation: 275 to 300 feet.

Kc — CASTLEGATE SANDSTONE: Fine- to medium-grained sandstone; local concentrations of clay galls at various horizons; forms high, abrupt cliffs and bare sandstone dip slopes. Thickness of formation: 145 to 160 feet.

Kb — BLACKHAWK FORMATION: Upper Mudstone Member - Mudstone and discontinuous sandstone, siltstone, and claystone; Grassy Sandstone Member - Fine to medium salt and pepper sand; Sunnyside coal. Sunnyside Sandstone - Arenaceous siltstone and very fine-grained to medium-grained sandstone, grading downward from coarser to finer; forms cliffs; sharp upper contact; transitional lower contact. Lower Mudstone Member - Mudstone and discontinuous siltstone, sandstone, and claystone; Rock Canyon coal bed at base. Kenilworth Member - Siltstone and very fine-grained to medium-grained sandstone; forms lower part of Book Cliffs. Thickness of formation: 550 to 600 feet.

Km — MANCOS SHALE: Dark gray fissile mudstone containing discontinuous layers of claystone and limy concretions. Intertongues with lower members of the Blackhawk Formation. Thickness of formation: 3,000 to 4,000 feet.

GEOLOGIC DESCRIPTIONS DERIVED FROM USGS MAP I-798, 1974

KAISER STEEL CORPORATION

GENERALIZED LITHOLOGIC SECTION

MINE PLAN AREA

EMERY COUNTY, UTAH

1981

Figure VII-2

7.1 Cont.

The Dakota Sandstone is found some 3,000 plus feet below the MPA. Intervening shale units are considered impermeable.

The sandstones are generally fine- to medium-grained with argillaceous or calcareous cement, and appear to have low permeability.

Thin limestone beds are most predominant in the upper portions of the Flagstaff Limestone and North Horn Formation.

Recent drilling of nine coal-core holes penetrated the Bluecastle Sandstone through Sunnyside Sandstone portion of the lithologic section. These holes were within one and one-quarter miles east of the cliff face and within the initial Mine Permit Area. The holes, drilled with air, mist and foam, did not detect any water in the subsurface with the exception of drill hole S-32. No apparent increase in fluid level could be attributed to groundwater inflow from these holes, some of which were open for two weeks.

Core hole S-32, drilled in 1981, is located structually downdip near the eastern boundary of the initial Mine Permit Area. This core hole has been established as water monitoring hole WMH-3_D (Plates VI-7 and VI-11). Water observations are as follows:

S-32		Formation
Surface Elevation	6,567'	
Total Depth	969'	Sunnyside Sandstone
Drilling Completed	8/12/81	
Fluid Level	957'	Lower Seam
Elevation	5,610'	
Observation	9/14/81	
Fluid Level	736'	
Elevation	5,831'	Base of Castlegate Sandstone

7.1 Cont.

Although no significant flow of water from S-32 is expected, a slug test and possible pump testing are scheduled for 1982. No quality data have been obtained. Based on the driller's observations, it would appear that the water inflow is from fractures in the Sunnyside main seam.

A number of the coal-core holes drilled prior to 1980 were located along the eastern boundary of the MPA. These holes began in the Flagstaff and North Horn Formation. These holes, when drilled with air, encountered small inflows of water. This necessitated a change to a mud system. The lithographic drill logs indicate the water inflows to be from thin limestone and sandstone beds within the Flagstaff and North Horn Formation.

The east-west faults and their fracture or joint systems are probable water carriers. The springs and seeps observed in the MPA and adjacent areas are associated with alluvium and eroded surface expressions of joint systems in the lower Colton Formation, and Flagstaff and North Horn Formation.

(b) Groundwater Recharge, Movement, and Storage

Groundwater is generally recharged from spring snowmelts which feed intermittent and ephemeral streams and from summer thunderstorms. Water generally percolates downward along the structural dip toward the east and out of the MPA.

Recharge of sandstone units is low due to their nearly vertical topographic expression.

Water collecting on the gentle slopes of the Flagstaff and North Horn Formation percolates downward seeking thin limestone solution cavities and fractures.

7.1 Cont.

Water storage is likely to be found where this formation is transected by the fault systems. Due to the dying out of the faults east of the MPA, no large storage systems can be expected.

No groundwater level or piezometric surfaces have been determined on the MPA. However, a separation of groundwater systems may exist in the Flagstaff and North Horn Formation and lower sandstone formations. The lower Flagstaff-North Horn shale sediments would be the impermeable zone separating the systems.

(c) Groundwater Quality

No subsurface groundwater quality is presently available.

(d) Water Wells and Users

There are no water wells in or adjacent to the MPA.

7.1.3 Groundwater Development and Mine Dewatering

7.1.3.1 Water Supply

(a) Quantity and Quality

No usable quantity of water is expected in the initial underground Mine Permit Area. During later years of mining in the MPA, moderate amounts of water may be expected in the northern and eastern portions of the MPA, especially along fault zones. This water will be available for mine use.

A potential exists for development of subsurface groundwater from wells drilled in proximity to the Lila Canyon, Central Graben and Williams Draw fault zones along the eastern boundary of the MPA. However, Kaiser Steel Corporation has no plans to develop this source at the present time.

7.1 Cont.

There are no available data on the quality of subsurface groundwater. However, the quality is expected to be similar to that of the springs found in the area.

(b) Water Rights

There are no developed subsurface water rights on the MPA.

7.1.3.2 Mine Dewatering

(a) Quantity and Quality

Mining of the exploratory test entry from the Geneva Mine during years 1957 to 1962 encountered in-place water in the Sunnyside seam. This water was allowed to collect in short cuts made into the downdip entry (Plate VI-6) which was sufficient to keep excess water from working areas.

In the initial Mine Permit Area, water in the mine is expected to be of little consequence. However, in the proposed mine plan, capital is provided for pumps, pipeline, and auxiliary equipment to pick up and dispose of the water that may be generated as the mine develops.

The quality of the mine water is expected to be better than the present quality of water found in the Price River at Woodside.

(b) Water Rights

Kaiser Steel will make the necessary applications to appropriate the mine water as it becomes available.

7.1 Cont.

7.1.4 Effects of Mining Operation on Groundwater

7.1.4.1 Hydrologic Balance

The proposed mine plan allows for the development of mains and room and pillar sections near the cliff face during the initial five-year permit term. Groundwater is not expected in these areas.

In future years, as mining extends further downdip and nears faults and fractures, groundwater in increasing quantities may be encountered. Longwall production will commence shortly beyond the initial permit term. As longwall mining induces caving, conditions more conducive to the disturbance of groundwater will then be present. Because of the low recharge capability indicated, changes in the hydrologic balance of the regional area are expected to be minimal.

7.1.5 Mitigation and Control Plans

There are no perennial streams within the MPA. Little, if any, water is expected during the initial permit period. Gravity flow of in-place water is downdip and outside the MPA. Excess mine water when encountered will be pumped to the surface and used for outside facilities or discharged according to appropriate regulatory authorization. In areas where abrupt flows are encountered, horizontal and vertical drill holes may be necessary to alleviate the static water level.

7.1.6 Groundwater Monitoring Plan

The monitoring of subsurface water will include the following:

(a) Measurement of the static water level in WMH-3_D on a quarterly basis.

7.1 Cont.

(b) Measure the water flow and test the water quality monthly when sufficient water is encountered to merit such monitoring.

(c) Measure and record water data from future drill holes.

(d) Future reports concerning groundwater data will be submitted on a quarterly basis.

7.2 Surface Water Hydrology

7.2.0 Scope

This section on Surface Water Hydrology pertains to requirements under UMC 783.13, 783.14, 783.16, and 783.17 as well as UMC 784.11(b), 784.13(b), 784.14, 784.16, and 784.22 primarily.

The South Lease MPA occupies a portion of the Book Cliffs coal field which is drained by tributaries to the Price River (Plate VII-1). Little Park Wash, which flows through the MPA above the cliff escarpment, is the major dry wash in the permit area. Below the cliffs, The Cove area is drained by Grassy Wash (dry) and Marsh Flat Wash (dry).

Kaiser Steel geologists have identified a number of seeps and springs in and adjacent to the MPA, however they are located several hundred feet in elevation above the Sunnyside main seam. Numerous stock ponds have been noted in the area adjacent to the MPA. Only one is on surface land included in the MPA.

Water supplies for mine facilities are expected to be developed from the underground mine workings and from the Price River.

Kaiser Steel holds certain water rights on the Price River and in Range Creek. Alternate possible sources include wells developed within the MPA near transverse faults, in alluvial fill, and deep wells drilled to the Navajo Sandstone; the Geneva and Sunnyside Mines; and the Green River.

Sedimentation ponds, impoundments and diversions will be constructed if required during the permit period.

Kaiser Steel proposes various control practices to protect all surface waters such as stabilization of disturbed areas and reseeding of reclaimed areas.

7.2 Cont.

A water monitoring program includes measurement of water in the alluvium of Little Park Wash, crest staff gages for measurement of flash floods and selected spring sampling.

No area in the MPA is found to fit the geomorphic criteria for alluvial valley floor.

7.2.1 Methodology

Information on surface water hydrology has been derived from several sources including:

a) Experience generated during years of operation of the Sunnyside Mines by Kaiser Steel.

(b) Field observations over a 12-month period by Kaiser Steel personnel.

(c) Information obtained pursuant to compliance with federal and state regulations by Kaiser Steel directly or through outside organizations.

(d) Government publications such as:

"Final Environmental Statement, Development of Coal Resources in Central Utah" by the U. S. Geological Survey (1979).(1)

"Technical Identification and Study of Alluvial Valley Floors - Guidelines." (Draft), Office of Surface Mining, Department of the Interior (8/15/78).(2)

"Reconnaissance of Chemical Quality of Surface Water and Fluvial Sediment in the Price River Basin, Utah." State of Utah, Department of Natural Resources, 1972.

7.2.2 Existing Surface Water Resources

7.2.2.1 Regional Surface Water Hydrology

The Wasatch Plateau-Book Cliffs area consists of about 8,000 square miles in east-central Utah. The major geographic features

7.2 Cont.

included in the area are the Wasatch Plateau, Book Cliffs, San Rafael Swell, Price River basin, and a small part of the Green River basin.[4] These units are in turn a part of the Upper Colorado River basin.

The Price River basin is mainly in Carbon and Emery Counties in east-central Utah, and the total drainage area is about 1,900 square miles. The Price River flows in a generally southeasterly direction toward its junction with the Green River. Altitudes in the basin range from about 10,440 feet above mean sea level in the headwaters to about 4,200 feet at the mouth. Normal annual precipitation is more than 30 inches in headwaters areas and less than eight inches in the downstream portion of the basin. Surface rocks in the basin range in age from Jurassic to Quaternary, but the rocks having predominant influence on water quality are marine shales of Cretaceous age.[3]

The Book Cliffs coal field is drained primarily by tributaries to the Price River which is itself a principal tributary of the Green River. (Plate VII-1.)

Perennial flow occurs mainly in small streams in the mountains and in larger streams that head in higher mountains where precipitation is the highest. Many streams are ephemeral and flow only in direct response to precipitation or snowmelt. Snowmelt is a major contributor to streamflow while groundwater may be an important factor in certain streams. Summer precipitation does not usually produce much runoff. Intense rainfall may cause heavy flooding but only affecting small areas. The 100-year, 6-hour precipitation ranges from 1.8 inches at lower elevations to 2.5 inches in the mountains.[1]

7.2 Cont.

About 90,000 acre-feet are diverted annually in the Price River basin for irrigation. Some groundwater is used for irrigation as well as for domestic and stock purposes but the total amount is small. Springs and seeps also supply intermittent but small amounts of water for stock and wildlife.

The Price River basin is divided into upper, central and lower basins. The upper basin is the major source of water that is used for irrigation in the central basin. Irrigation return flow and wastes cause deterioration to the water quality of the central basin. The poor quality of water in the lower basin results mainly from the geologic environment and water usage in the central basin.

In general, the chemical quality of surface water is relatively good in the headwater areas but deteriorates downstream. The concentration of dissolved solids in surface water ranges from about 100 to 500 mg/l (milligrams per liter) in headwater areas to about 1,000 to 5,000 mg/l in the lower reaches of most streams (U.S. Geological Survey, 1977). The dominant chemical constituents in the headwaters are calcium and bicarbonate; in the middle reaches calcium, magesium, sodium, bicarbonate, and sulfate with local variation; and in the lower reaches sodium and sulfate (Table VII-1). Water in the through-flowing Green River contains 250 to 750 mg/l dissolved solids. The concentration of dissolved solids in streams is usually inversely proportional to flow. Thus, the chemical quality of water is usually best during high flow and worst during low flow.[1]

7.2 Cont.

Table VII-1 Water Quality Data,[1] U. S. Geological Survey, 1976 Water Year

[Constituents in milligrams per liter]

Station name[2]		TDS	Ca	Mg	Na	K	Cl	So_4	HCO_3	SS
Price River at Woodside ----	Min.	1,660	170	85	230	7.0	31	1,000	260	48
	Max.	4,440	310	250	730	12	78	2,800	530	5,630
Green River at Green River--	Min.	290	41	15	30	1.8	9.7	110	150	332
	Max.	703	82	35	110	3.3	35	300	270	3,400

[1]TDS = Total dissolved solids; Ca = Calcium; Mg = Magnesium; Na = Sodium; K = Potassium; Cl = Chloride; SO_4 = Sulfate; HCO_3 = Bicarbonate; SS = Suspended sediment.
[2]Location of stations shown in figure II-5.

Concentrations of trace elements and heavy metals in the headwater areas are generally less than the maximum limits recommended by the National Academy of Science, National Academy of Engineering (1973) for public supply and aquatic life (Table VII-2); however, in the middle and lower reaches of the Price River basin, concentrations of certain elements including aluminum, arsenic, lead, manganese, selenium, and zinc commonly exceed recommended limits, and cadmium, copper, mercury, nickel, and silver occasionally exceed recommended limits according to recent unpublished data from Southeastern Utah Association of Governments (Table VII-3). Water in the Green River at Green River, Utah, at times in 1976 contained concentrations of chromium, copper, lead, and zinc in excess of recommended limits (Table VII-4). Water from some of the coal mines contains greater concentrations of arsenic, iron, manganese, and selenium than have been detected in streams according to unpublished data from the Southeastern Utah Association of Governments' 208 Water Quality Program. Data on concentrations of other metals and trace elements in coal mine effluent are not available; however, concentrations of dissolved solids are comparable to that of nearby streams.(1)

TABLE VII-2.--Water quality criteria

[Source: National Academy of Science, National Academy of Engineering (1973)]

Chemical parameter	Public supply limit (mg/L)	Aquatic life threshold (mg/L)	Chemical parameter	Public supply limit (mg/L)	Aquatic life threshold (mg/L)
Aluminum----------	-	0.1	Lead----------	0.05	[1]0.03
Arsenic----------	0.1	0.1	Manganese (soluble)-	0.05	--
Barium----------	1.0	1.0	Mercury----------	0.002	[1]0.05
Cadmium----------	0.01	[1] [3]0.3	Nickel----------	--	0.01
		[1] [4]0.004	Nitrate-Nitrogen----	10.0	--
Chloride----------	250	--	Nitrite-Nitrogen----	1.0	--
Chromium----------	0.05	0.05	Selenium----------	0.01	10.0
Cobalt----------	--	5.0	Silver----------	--	0.001
Copper----------	1.0	[3]0.015-0.033	Sulfate----------	250	--
		[4]0.011-0.018	Zinc----------	5.0	0.005
Cyanide----------	0.2	--	Unionized ammonia---	--	0.02
Flouride----------	[2]1.4-2.4	--	Free chlorine-------	--	0.01
Iron (soluble)-----	0.3	--			

[1]Recommended maximum level.
[2]Dependent upon ambient temperature.
[3]Hard water.
[4]Soft water.

7.2 Cont.

TABLE VII-3.--Trace element concentration in Price River near Woodside

[Source: Unpublished data, Southeastern Utah Association of Governments]

Element	Times sampled	Exceeded limits	Mg/L highest reading	Mg/L highest recommended limits (EPA, 1973)
Cadmium--------	11	1	0.113	0.03
Copper---------	7	1	.035	.033
Lead----------	9	2	.038	.03
Mercury--------	6	1	.60	.05
Nickel---------	6	4	.075	.01
Silver---------	6	1	.004	.001
Zinc----------	7	4	.159	.005

TABLE VII-4. --Trace element concentrations in the Green River at Green River, Utah, 1976

Elements	Concentrations (mg/L) Total	Dissolved
Arsenic----------	0.002-0.015	0-0.033
Cadmium----------	0- 0.010	0-0
Chromium----------	0-0.096	0-0.010
Cobalt----------	0.050-0.050	0-0
Copper----------	0.010-0.110	0.001-0.006
Iron----------	0.590-32.000	0-0.060
Lead----------	0.100-0.200	0-0.005
Manganese---------	0.030-1.000	0-0.020
Mercury----------	0-0.0001	0-0.0001
Selenium----------	0.001-0.003	0.001-0.002
Zinc----------	0-0.150	0-0.080

7.2 Cont.

In general, concentrations of suspended sediments range from zero to a few thousand mg/l but occasioanlly may increase to more than 200,000 mg/l. Highest concentrations of suspended sediment occur during high-intensity runoff from thunderstorms, and lowest concentrations occur during base flow. (1)

Water quality records developed by the U. S. Geological Survey for Price River at Woodside, and Green River at Green River, during water years 1976 through 1980, are included in Section 7.5 as Plates VII-4 and VII-4A. These data can be used for comparative purposes.

7.2.2.2 Mine Plan Area Surface Hydrology

The MPA is situated in two distinct sub-basins of the Price River basin. The surface of the underground workings is drained by Little Park Wash above the Book Cliffs while the major mine facilities will be in The Cove area below the cliffs. This area is drained by Grassy Wash and Marsh Flat Wash. (Plate VII-2.)

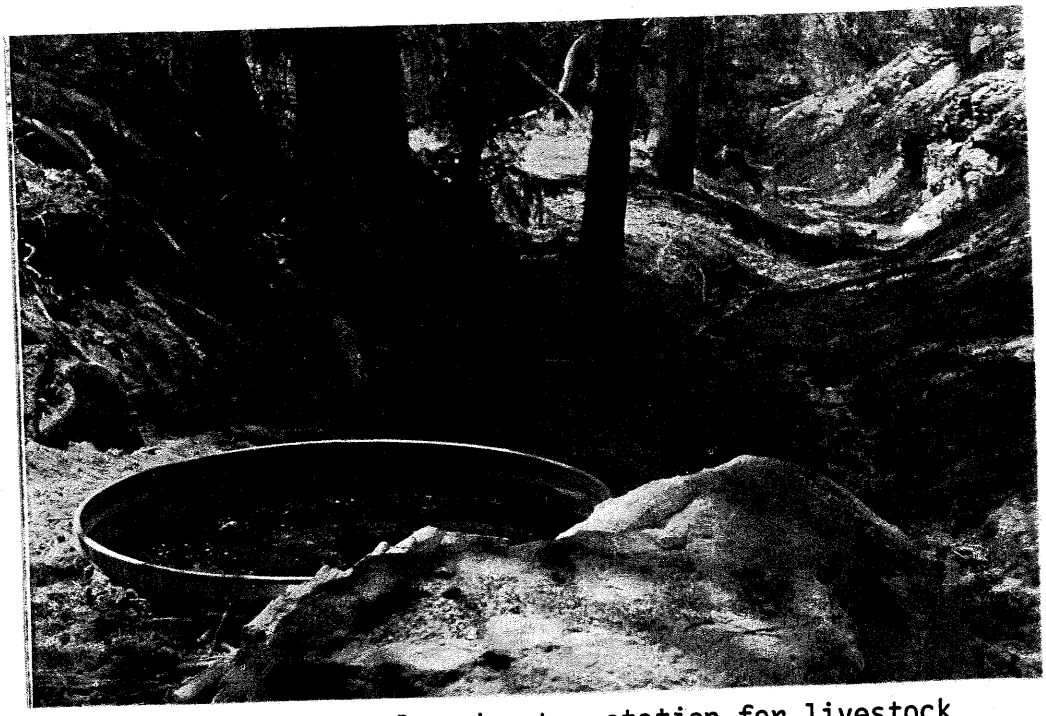
(a) Water Resources - Baseline Data

Location and results of field observations of water occurrences on the MPA and adjacent areas are shown on Plate VII-2 and Tables VII-5 and 6. Results of quality data are enclosed as Plate VII-3. Data from USWRD for Price River and Green River are enclosed as Plates VII-4 and VII-4A. Photographs VII-1 through VII-8 are enclosed in the text.

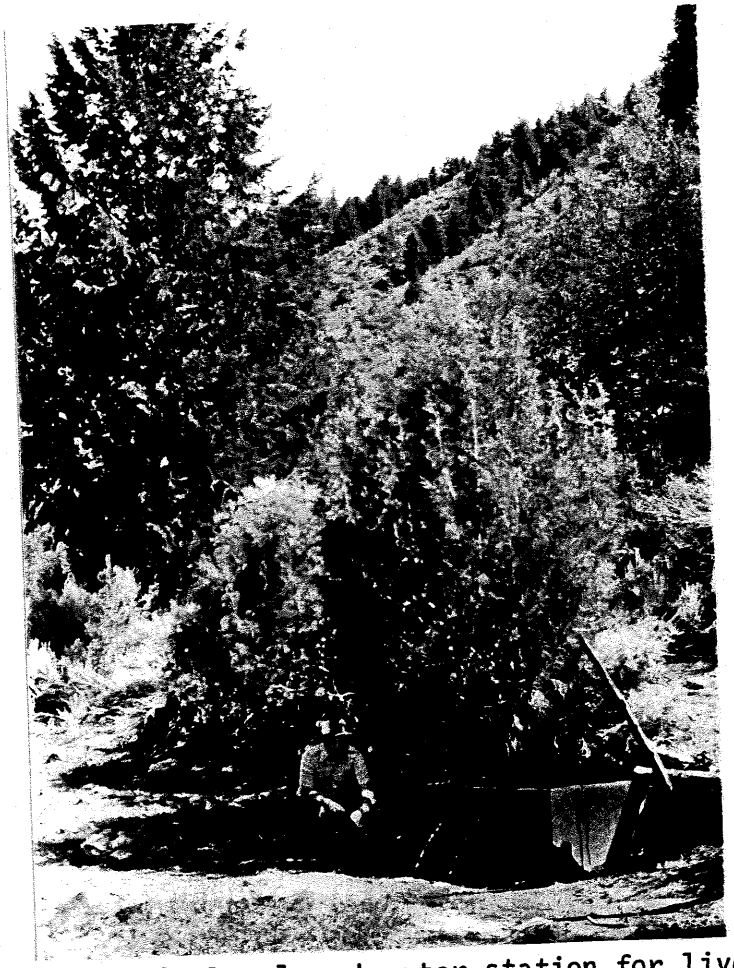
(b) Little Park Wash

The Little Park Wash drainage occupies approximately 48 square miles of the eastern dip slope of the Book Cliffs escarpment between Horse Canyon and the Price River 15 miles to the south. Several east-west tributaries from the steep western slope of the Roan sub-cliffs join the main Little Park Wash

7.2 Cont.

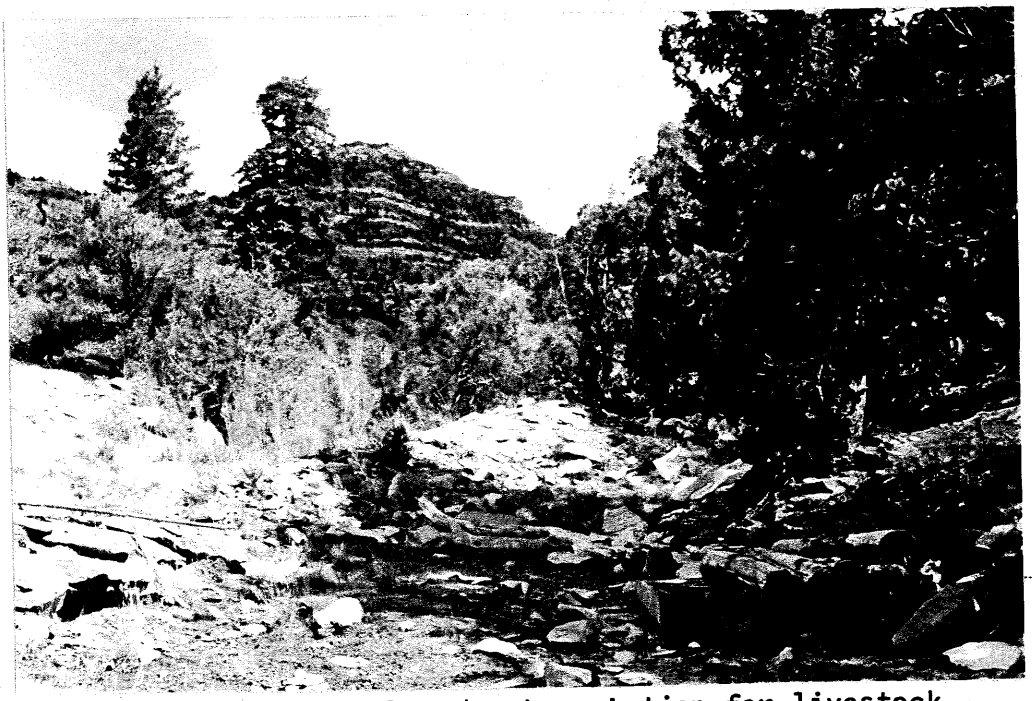


Photograph VII-1. Developed water station for livestock at location No. 9 on Plate VII-2.

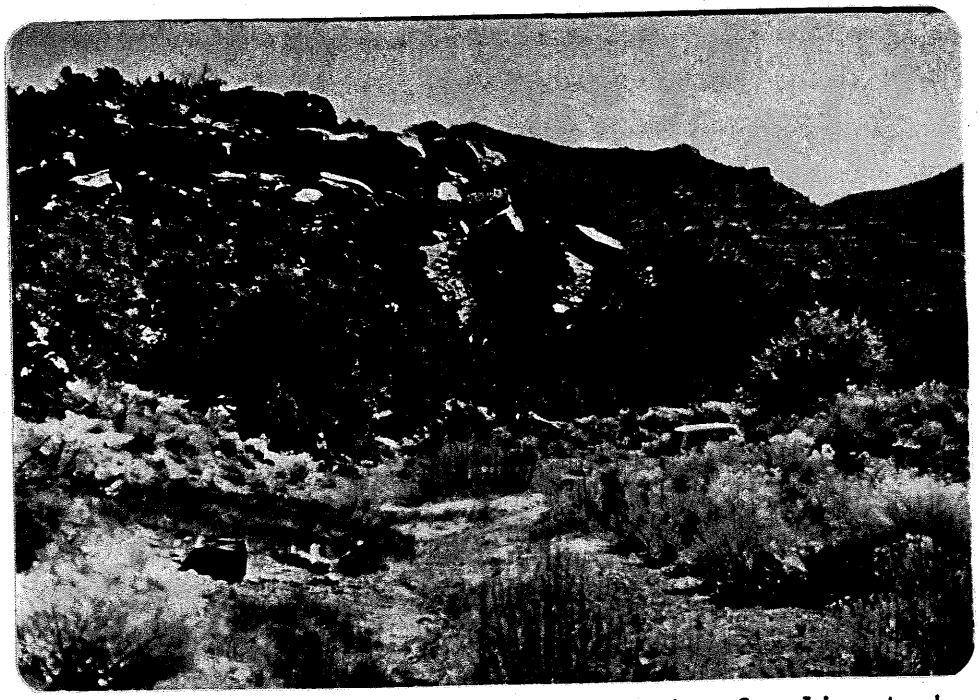


Photograph VII-2. Developed water station for livestock at location No. 10 on Plate VII-2.

7.2 Cont.



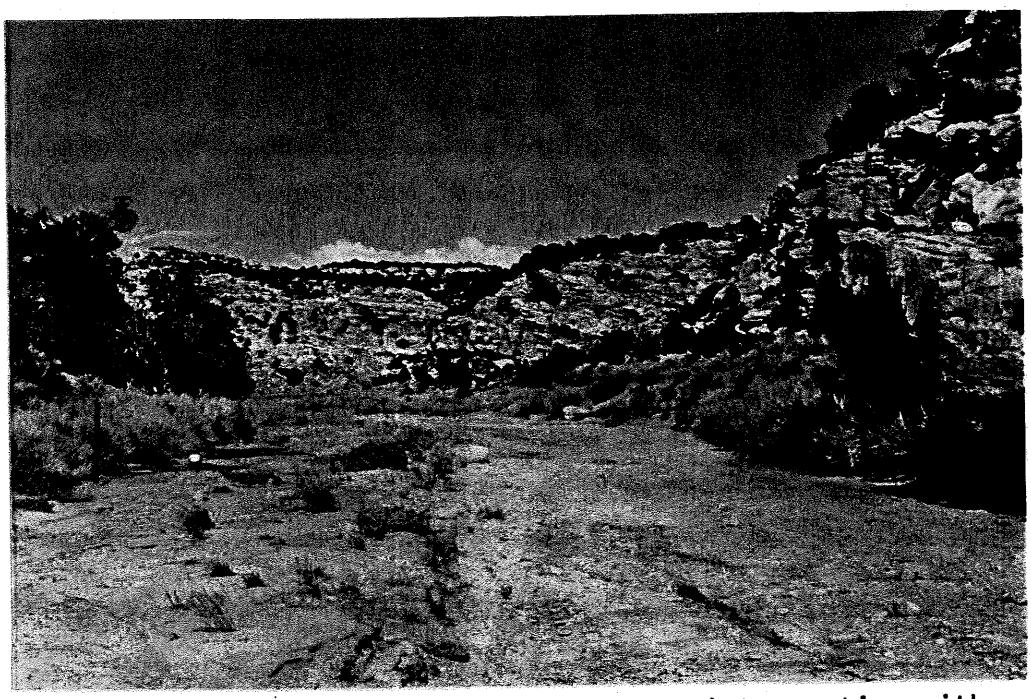
Photograph VII-3. Developed water station for livestock at location No. 16 on Plate VII-2.



Photograph VII-4. Developed water station for livestock in Williams Draw. Looking east. Location 14 on Plate VII-2.

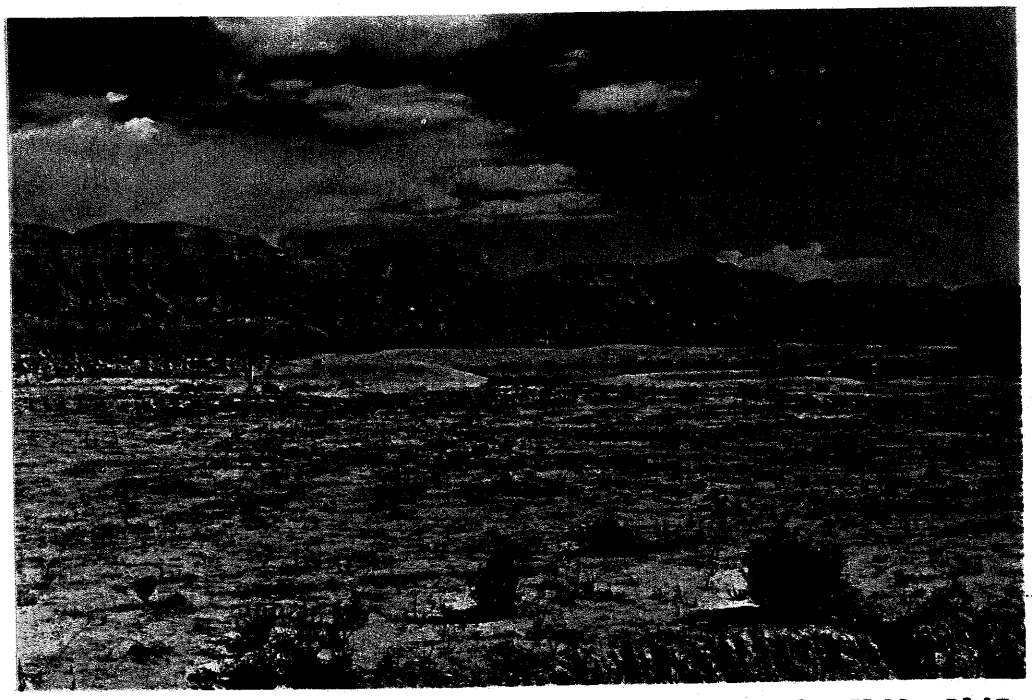
7.2 Cont.

Photograph VII-5. Typical example of water flow, less than one gallon per minute, from alluvium filled channel over bedrock. Location 3 on Plate VII-2.



Photograph VII-6. Little Park Wash below intersection with Williams Draw Wash. Looking upstream. White cap on left side of wash is WMH-2A. Crest staff gage CSG-2 on sides of wash.

7.2 Cont.



Photograph VII-7. Stock Pond in SE¼NE¼, Sec. 32, T16S, R14E.

Photograph VII-8. Stock Pond in SW¼SW¼, Sec. 28, T16S, R14E.

Table VII-5

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location of Observations	Observation Site Number	BLM* WUC No.	Flow	Date	Sampled	Temp.,°F	Remarks
T16S, R14E	Plate VII-2						
Sec. 1							
NW¼SE¼	1		1 gal./min.	9/9/81	9/9/81	54	Flow on bedrock from alluvium.
SE¼SE¼	2		Seep	9/9/81			Seeps.
SE¼SW¼	3		1 gal./min.	9/9/81	9/9/81	66	Flow on bedrock from alluvium. Numerous seeps upstream.
Sec. 12							
NE¼NE¼	4		Seeps	9/9/81		-	Moss on joints.
	5		Trickle	9/9/81		50	Small trickle on bedrock.
SE¼NE¼	6		<1 gal./min.	9/9/81		55	Small stream flow.
SW¼NE¼	7		1 gal./min.	9/9/81	9/9/81	57	Narrow flow over bedrock.
SE¼SE¼	8		<1 gal./min.	8/24/81	8/24/81		Small flow above trough running over bedrock.
SW¼SE¼	9	2537	No flow	8/24/81	-	-	Trough for cattle.
Sec. 13							
NW¼NE¼	19	2521	-	-	-	-	Not observed.
Sec. 24							
NE¼SE¼	22	2517	Dry	9/11/81	-	-	Spring as shown on base map(Plate VII-2) is dry. BLM WUC may be mislocated.
Sec. 25							
NW¼SE¼	11		Seeps	9/3/31	-	-	Area of seeps.
T16S, R15E							
Sec. 18							
SE¼SW¼	10	2519	1 gal./min.	9/3/81	9/3/81		Seeps upstream. Trough for cattle. Pipe runs to middle of stream. BLM WUC probably mislocated.
Sec. 19							
SW¼NE¼	15		<1 gal./min.	9/11/81	9/11/81		Small flow on bedrock; oily film noted.
	East of 15		Trickle	9/11/81	9/11/81		Left and right fork east of No. 15. Small trickle.

Table VII-5 Cont.

Location of Observations	Observation Site Number	BLM* WUC No.	Flow	Date	Sampled	Temp., °F	Remarks
T16S, R15E							
Sec. 19							
NW¼SW¼	16	2539	<1 gal./min.	9/11/81	9/11/81		Trough sample. Pipe runs into alluvium at side of bedrock.
	East of 16		<1 gal./min.	9/11/81	9/11/81		Sample taken in stream, upstream from trough.
SE¼SE¼	17		Trickle				
Sec. 30							
NW¼NE¼	18		<1 gal./min	9/12/81	9/12/81	55	Small trickle over bedrock.
	East of 18		Trickle	9/12/81		58	
SE¼NE¼	12		Trickle	9/12/31		64 Upper 59 Lower	Small trickle on bedrock.
Sec. 31							
SE¼NE¼	13		<1 gal./min.	9/13/81	9/13/81		Small flow on bedrock.
SW¼SE¼ (Williams Draw)	14	2535	<1 gal./min.	9/15/81	9/15/81		Small trickle into trough for cattle.
Sec. 32							
SE¼NW¼	20	2520	-	-	-		Not observed.
T17S, R15E							
Sec. 8							
NE¼SE¼	21	2518	-	-	-	-	Not observed. Data from BLM records.

*Bureau of Land Management WUC (Water User Claim) number from proposed Determination of Water Rights in the Price River and Lower Green River Drainage Area, Code 91. Plate VII-2 and Plate VII-6

Table VII-6

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA
STOCK PONDS

Location	Acre	BLM* WUC No.	Use	Observed	Remarks
T16S, R14E					
Sec. 3					
NW¼SE¼	<1 acre	2616	Livestock	9/9/81	Pond collects precipitation runoff.
Sec. 10					
SE¼NW¼	<1 acre	2615	Livestock	9/9/81	Pond collects precipitation runoff.
Sec. 14					
SW¼SE¼	<1 acre		Livestock	-	Taken from aerial photo.
Sec. 27					
NW¼NW¼	<1 acre	2618	Livestock	-	Not observed.
SE¼SE¼	<1 acre	2617	Livestock	-	Not observed.
Sec. 28					
SE½SE¼	<1 acre	2620	Livestock	9/15/81	Collects precipitation. Mislocated(?).
SW¼SE¼	<1 acre	2619	Livestock	9/15/81	Sampled.
SW¼SW¼	<1 acre	2621	Livestock	9/15/81	Collects precipitation.
Sec. 32					
SE¼NE¼	<1 acre		Livestock	9/15/81	Collects precipitation.
NW¼SE¼	<1 acre		Livestock	9/15/81	Collects precipitation.
NW¼SE¼	<1 acre		Livestock	9/7/81	Collects precipitation.
SE¼SW¼	<1 acre		Livestock	9/7/81	Collects precipitation.
Sec. 33					
SE¼NW¼	<1 acre		Livestock	-	Not observed.
T17S, R14E					
Sec. 5					
NW¼NE¼	<1 acre	2655	Livestock		Not observed.
Sec. 6					
NE¼NE¼	<1 acre	2646	Livestock	9/7/81	Collects precipitation.

*Bureau of Land Management Water User Claim Number.

7.2 Cont.

Approximately 14 square miles of MPA are located in the northern reaches of the drainage area. Elevation of the wash at Price River is 4,800 feet and south of Horse Canyon is 7,500 feet. The eastern slope rises to an elevation of over 9,000 feet while the western low Book Cliffs ridge is about 6,000 to over 8,000 feet.

Precipitation occurs mainly as summer showers and winter snow and ranges from 12 to 16 inches per year (Chapter XI). The main Little Park Wash channel is a dry ephemeral stream. No springs or seeps have been noted to date. The channel meanders through Holocene stream alluvium in the upper reaches and has incised a meandering channel through underlying Cretaceous rocks in the lower region below Williams Draw fault. The channel varies in width from 50 to several hundred feet wide. The adjacent slopes are of moderate to vertical gradient. The stream has cut an irregular channel into the underlying rock formation to a depth of 55 feet in places (Chapter VI, Plates VI-7 and VI-12).

The gradient is moderate, with mostly gravel, sand and silt filling the channel in the upper reaches and large boulders predominate in the vicinity of the Price River. Known springs and seeps occur along the intermittent east side tributaries. The tributaries are of moderate to steep gradients in narrow canyons, with mostly gravel to occasional rocky beds, with silt and sand where the gradient is reduced. The intermittent tributaries have headwaters in the Colton Formation outcrop in the sub-Roan cliffs, passing over the lower moderate slope-forming Flagstaff Limestone and North Horn Formations. The present known springs and seeps are associated with alluvium, sandstone and thin limestone beds of these geologic formations of Upper Cretaceous to Eocene age. Observations of intermittent water flow indicate flows of 1 gallon per minute or less.

7.2 Cont.

The intermittent flow of water probably reaches the main channel of Little Park Wash only in years of high precipitation. Presently the intermittent tributary, location 11 on Plate VII-2, which crosses the Central Graben, carries water. It is noted that earlier maps of the area do not show springs along this tributary thus indicating the intermittent nature of the springs themselves. Seasonal flash floods can be expected and tend to obliterate any human activity which has occurred in the washes. The sediment laden water from the upper reaches of Little Park Wash are probably absorbed by the stream alluvium prior to reaching the Price River except in the most extreme situation. Additionally, alluvial waters are lost to the many faults and associated fracture systems which the channel crosses prior to reaching the Price River.

Preliminary chemical data indicate the quality of surface water is relatively good in the headwater or northern reaches of the basin but deteriorates downstream below Williams Draw Fault. The concentration of dissolved solids from samples in the northern headwaters area ranges from about 481 to 610 mg/l while samples taken below the Central Graben Fault range from 1,190 to 2,000 mg/l. The major chemical constituents in the upper springs are bicarbonate, calcium, chloride, magnesium, potassium, sodium and sulfate. Below the Central Graben the chloride, magnesium, sodium and sulfate show increases with some reduction in potassium.

Concentrations of suspended sediments range from 5 to 26 mg/l in the upper springs and 1 to 39 mg/l from the lower sample sites.

Seasonal data, as they become more complete, may change the above preliminary characteristics of the subject watershed.

7.2 Cont.

(c) The Cove

South of Horse Canyon, The Cove drainage reaches its highest elevation of 8,500 feet at the head of Lila Canyon. Grassy Marsh Wash drains the upper reaches, joining Marsh Flat Wash, which drains the Book Cliffs escarpment in the Mine Plan Area, some 9 miles to the south. Approximately 1.5 square miles of the northwest surface overlying the coal zone within the Mine Plan Area is drained by Grassy Marsh Wash. The major dry wash, Marsh Flat Wash, enters the Price River (elevation 4,700 feet) in Section 6, T18S, R14E, and drains approximately 31 square miles.

The major surface facilities are located in the central portion of The Cove drainage area. The projected water pipeline from Price River will cross unnamed washes west of this area. The washes have cut Holocene gravels and Pleistocene pediment deposits overlying the eastern dipping Mancos Shale. The pediments are poorly to firmly cemented with caliche near the top. Sediments of silt, sand, and large boulders can be as much as 50 feet thick. The meandering V-shaped washes incised into the Mancos Shale are narrow with a thin veneer of sand and silt. The wash slopes are moderate to steep near the cliff escarpment. Precipitation is about 8 inches per year mostly in the form of summer showers creating flash flood conditions. With the exception of Grassy Wash above Lila Canyon, the washes are ephemeral. Although seeps have been reported below the cliff face along fault traces of the Central Graben, no observation was noted in 1981. The many stock ponds are replenished by local rainfall (Table VII-6). Water flowing into the pediments near the cliff escarpment probably seeps out at lower elevations above the dry washes and, therefore, is not stored. Analysis of a grab sample of stock pond water and of stagnant water in a nearby wash are included in Plate VII-3.

7.2 Cont.

7.2.3 Surface Water Development, Control and Diversions

7.2.3.1 Water Supply

The existing water rights within and in the vicinity of the MPA are held by the BLM for stock watering. Eight of these Water User Claims (WUC) constitute the Little Park Allotment; seven constitute the Cove Allotment; two, the Lila Canyon Allotment and, three, the Coon Spring Allotment. (Plates VII-2 and VII-5).

Kaiser Steel Corporation holds WUC 91-241 (Application 29412) from the Utah Division of Water Rights for 1,000 acre feet of water annually from the Price River, the diversion to be in Section 9, T17S, R13E, SLB&M.

It is intended that in the initial mine development work water will be trucked to the permit area. Subsequently, underground mine water will be utilized to the maximum extent feasible. The 1,000 acre foot Price River water right is sufficient to provide for the needs of the full-scale mining operation planned. It is also sufficient to provide the water requirements for a coal washing and preparation plant should one be placed in service in future years.

Beyond the initial permit term, a water pipeline approximately 7.25 miles in length from a pumping station at a group of well points centered at the point of diversion in Section 9, T17S, R13E to the permit area may be indicated and is allowed for in the project plans. Kaiser Steel is in the process of seeking to move the point of diversion along the river to Section 23, T17S, R13E. The permit will be updated to show this change. The alignment of such a pipeline within the permit area would parallel the access/haul road from Highway 50 and 6 within the 400-foot-wide linear right-of-way applied for and then traverse

7.2 Cont.

the nonlinear right-of-way also applied for to storage tanks in the main slopes portal area. The quality of water is expected to be similar to that found in the Price River between Mounds and Woodside (Plate VII-4).

Alternate water sources include:

(1) Wells developed near transverse faults and in alluvial fill in the MPA.

(2) Deep wells drilled to formations below the Mancos Shale.

(3) Green River, 32 miles south of the MPA.

(4) Sunnyside Mine, 12 miles north of the MPA and possibly Geneva Mine of U. S. Steel.

7.2.3.2 Sedimentation Control Structures and Diversions

Retention ditches with emergency spillways, interceptor ditches, retention berms, channels and culverts have been utilized as sedimentation control structures. The planned location of these structures are shown on Plate III-5. The design details are shown on Plate VII-6.

The drainage areas with their respective acreages are shown on Plate III-5. These were used for calculating the capacities of the control structures.

At the base and top of the Book Cliffs interceptor ditches, culverts and channels are used to divert the water away from the disturbed areas. These were sized for the total flow (Q) by results obtained from the SCS method and McMath method. A curve number of 85 for the 25-year 24-hour storm event was used.

7.2 Cont.

The runoff from the disturbed areas will be collected in retention ditches with emergency spillways and fill ditches. The fill ditches will be located at the toe of the fills where runoff will not be collected by retention ditches. The runoff from the fill ditches will be passed through straw filters.

The retention ditches and fill ditches were designed to retain the total Q for the 10-year 24-hour event using a curve number of 95. The emergency spillways were designed to discharge the peak flow for the 25-year 24-hour event with a curve number of 95.

The sediment control structures will be seeded after completion of construction. The seed mixtures are presented in Table III-8. However, in these habitat types, natural ground cover is generally insufficient to prevent erosion. Therefore, riprap, energy dissipators and other means will also be used for erosion control. Sediment will be removed from the structures if it fills to 60 percent or more of the retention ditch capacity.

A retention berm is proposed to collect the runoff from the temporary coal stockpile. It is shown in plan view on Plates III-9 and VII-6. It was designed for the 10-year 24-hour event with a curve number of 85 to retain the total Q. This design was determined by topographic constraints and the proximity of the temporary coal stockpile to the Little Park Wash.

7.2.4 Effects of Mining on Surface Water

There are no perennial streams on the MPA and adjacent areas. Observed water resources (seeps and springs) are not in the vicinity of planned mine facilities and are several hundred feet above the Sunnyside main seam. The temporary mining activity in Little Park Wash should have minimal affect on flash flood waters passing through the area.

7.2 Cont.

Below the cliff escarpment, access roads will require culverts and land fills which can create conditions for damage from flash floods. In general, surface waters should not be affected significantly by mining activities.

7.2.4.1 Hydrologic Balance

There are no perennial streams in the MPA. Impoundment dams on dry streams for water usage or control of flash floods and spring runoff are not contemplated. Minor change in the Hydrologic Balance of surface waters can be expected.

7.2.4.2 Quality

Quality of flash flood waters and spring runoff, if any, is not expected to be affected by mining activity.

7.2.5 Mitigation and Control Plans

To control snow melt runoff and precipitation, mainly flash flooding, retention ditches, berms, channels and culverts, have been incorporated as control structures.

A program for protection of subsidence in the Little Park Wash area is discussed in Chapter XII.

7.2.6 Surface Water Monitoring Plans

Collection of water samples from observed water occurrences commenced in the fall of 1980. Ongoing sampling and measurement of surface and alluvial water will consist, on a quarterly basis, of the following parameters. See Plates VI-7 and VII-2.

(a) Measurement and sampling of water at WMH-1A and WMH-2A.

(b) Observation of crest staff gages CSG-1, 2 and 3.

(c) Sampling and measurement of sites No. 14 and 16 noted above.

(d) Future reports of surface water data will be submitted on a quarterly basis.

7.3 Alluvial Valley Floor Determination

The westward-facing Book Cliffs are rugged and deeply dissected by steep-sided canyons of intermittent and ephemeral streams. These streams also cut pediments that slope gently away from the foot of the cliffs toward the Price River.

The South Lease MPA covers a portion of the Book Cliffs (Plate VI-1). Little Park Wash occupies a rather narrow strike valley above the cliff and drains the upper MPA, joining the Price River some nine miles to the southeast. There is no flood plain or stream alluvium noted in the lower reaches of Little Park Wash.

Below the cliffs, the MPA is situated on the upper portions of pediment surfaces which have been deeply cut by streams exposing the underlying Mancos Shale, thus preventing any retention of subsurface water, if any.

Statutory language specifically excluded "upland areas" from consideration as Alluvial Valley Floors [P.L. 95-87, S 701 (1)]. These areas to be excluded from consideration may include the upper portion of alluvial fans, pediment surfaces, etc. Areas underlain by bedrock and covered by residual weathered material and debris deposited by sheetwash and rillwash are also upland areas.(6)

It is evident from the geologic map (Plate VI-1) that the above-described definition of "upland areas" is applicable to the MPA.

There is no prime farmland in or adjacent or downstream from the MPA.

It may be concluded, therefore, that no area in the South Lease Coal Property Permit Area meets the geomorphic criteria for Alluvial Valley Floor.

7.4 Bibliography

(1) "Final Environmental Statement, Development of Coal Resources in Central Utah," Department of the Interior, U. S. Geological Survey (1979).

(2) "Geology of the Single-Entry Project at Sunnyside Coal Mines 1 and 2, Sunnyside, Utah;" USBM Report of Investigations 8402, 1979; by Barbee J. Scheibner.

(3) "Reconnaissance of Chemical Quality of Surface Water and Fluvial Sediment in the Price River Basin, Utah;" Technical Publication No. 39, State of Utah, Department of Natural Resources, 1972.

(4) Sumsion, C. T., "Selected Coal-related Ground-water Data, Wasatch Plateau - Book Cliffs Area, Utah," Utah Hydrologic Data Report No. 32. U. S. Geological Survey Open-File Report 79-915.

(5) Waddell, K. M., H. L. Vickers, Robbin T. Upton, and P. Kay Contratto. Selected Hydrologic Data, 1931-77, Wasatch Plateau - Book Cliffs, Coal-Fields Area, Utah. Utah Basic Data Release No. 31, U. S. Geological Survey Open-File Report 78-121.

(6) "Technical Identification and Study of Alluvial Valley Floors--- Guidelines." (Draft.) Department of the Interior, Office of Surface Mining (Revised August 15, 1978.)

(7) "Proposed Determination of Water Rights in the Price River and Lower Green River Drainage." (Area Code Nos. 91 and 92.) In the District Court of the Seventh Judicial District of the State of Utah and for Carbon County.

7.5 Plates

Plate VII-1	Price River Basin, Mine Plan Area
Plate VII-2	Water Resources Map
Plate VII-3	Water Quality, Mine Plan Area, Baseline Data (31 pages)
Plate VVI-4	Regional Water Quality, Baseline Data - Price River at Woodside, Utah (22 pages)
Plate VII-4A	Regional Water Quality, Baseline Data - Green River at Green River, Utah (36 pages)
Plate VII-5	Existing Water Rights Within the Mine Plan Area and Vicinity (9 pages)
Plate VII-6	Sedimentation Control Structures (Sheets 1 and 2)

FEB 2 0 2004
DIVISION OF OIL, GAS & MINING

KAISER STEEL CORPORATION

SOUTH LEASE COAL PROPERTY

EMERY COUNTY, UTAH

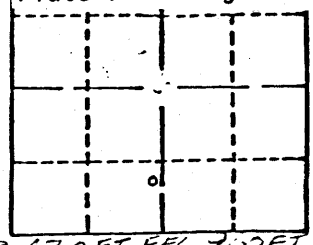
TYPICAL DRILL LOGS OF COAL CORE HOLES S-32, S-27, & S-14

(SEE PLATE VI-2 FOR LOCATION OF S-14)

SCALE: 1" : 2000'

DATE: OCT., 1981

PLATE VI-8



T 17S
R 15E
Lat. ____
Long. ____
2,430 FT FEL, 960 FT FSL
Location Diagram

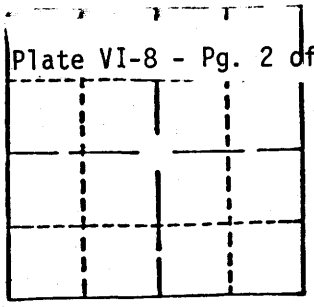
DRILL LOG

Hole Number: [illegible]
Collar Elevation: [illegible]
Determined by: [illegible]
Total Depth: 949 FEET
Total Plug Footage: 894 FEET
Total Core Footage: 75 FEET
Core Interval 937.8-944.4 Seam SUNNYSIDE
Core Interval 952.8-956.4 Seam LOWER
Core Interval ____ Seam ____

Sheet 1 of 12
Drilling Company: [illegible]
Date Begun: 8/8/81
Date Completed: 8/14/81
Casing: 949 FEET OF 4 INCH STEEL PIPE

COMPOSITE LOG
SCALE: 1" = 10'

Hole Size	Type Sample	Core (%) Recovery	Elevation	Depth	Log	Geologic Description and Comments
6" 4' STEEL PIPE	CUTTINGS AIR + FOAM			0		0.0-58.0 MUDSTONE AND SANDSTONE
				10		MUDSTONE: LIGHT TAN, GRAY, SOFT. FLAGSTAFF - NORTH HORN FORMATION
				20		MUDSTONE: LIGHT GRAY, FIRM.
				30		MUDSTONE AND SANDY SILTSTONE: LIGHT GRAY.
				40		SANDSTONE: LIGHT GRAY, VERY FINE-GRAINED.
				50		SANDSTONE AND MUDSTONE: SANDSTONE; LIGHT TAN; MUDSTONE; DARK GRAY
				60		58.0-218.0 SANDSTONE SANDSTONE: LIGHT TAN, FINE-GRAINED, LOOSE, ANGULAR.
				70		
				80		



T____
R____
Lat. ____
Long. ____

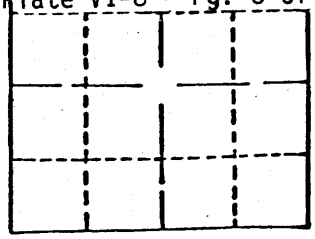
Location Diagram

DRILL LOG

Hole Number: [illegible]
Collar Elevation: ____
Determined by: ____
Total Depth: ____
Total Plug Footage: ____
Total Core Footage: ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____

Sheet 2 of 13
Drilling Company: [illegible]
Date Begun: ____
Date Completed: ____
Casing: ____

Hole Size	Type Sample	Core (%) Recovery	Elevation	Depth	Log	Geologic Description and Comments
6"	CUTTINGS			80		SANDSTONE: LIGHT TAN, FINE-GRAINED.
						BLUECASTLE SANDSTONE MEMBER OF PRICE RIVER FORMATION
				90		
				100		SANDSTONE: LIGHT GRAY TO LIGHT TAN, VERY FINE GRAINED.
				110		MUDSTONE: GRAY, FIRM.
						SANDSTONE: TAN, FINE TO MEDIUM-GRAINED, LOOSE TO WELL CEMENTED.
				120		
				130		
				140		SANDSTONE AND MUDSTONE: GRAY-
				150		SANDSTONE: LIGHT TAN-BROWN, VERY FINE-GRAINED.
				160		



T____
R____
Lat. ____
Long. ____

Location Diagram

DRILL LOG

Hole Number: [illegible]
Collar Elevation: ____
Determined by: ____
Total Depth: ____
Total Plug Footage: ____
Total Core Footage: ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____

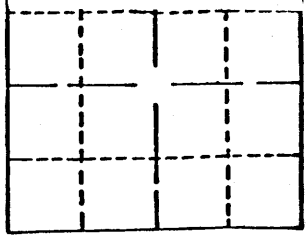
Property: ____
Sheet 3 of 13
Drilling Company: [illegible]
Date Begun: ____
Date Completed: ____
Casing: ____

Hole Size	Type Sample	Core (%) Recovery	Elevation	Depth	Log	Geologic Description and Comments
				160		
				170		SANDSTONE, SILTSTONE, AND MUDSTONE: GRAY, DARK GRAY.
				180		
				190		SANDSTONE: TAN, BROWN, SILTY TO VERY FINE-GRAINED, LOOSE, DAMP.
				200		
				210		
				220		218.0-568.0 SILTSTONE, SANDSTONE AND MUDSTONE.
				230		
				240		SANDSTONE: GRAY, SILTY TO VERY FINE-GRAINED.

Plate VI-8 - Pg. 4 of 27

DRILL LOG

Property: SOUTHBASE



T____
R____
Lat.
____
Long.
____

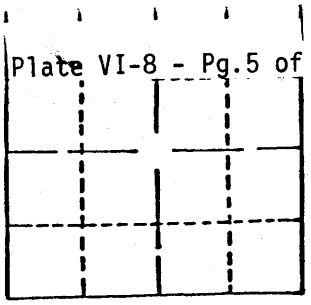
Location Diagram

Hole Number: KSS-S-38-81
Collar Elevation:
Determined by:
Total Depth:
Total Plug Footage:
Total Core Footage:
Core Interval ____ Seam ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____

Sheet 4 of 13
Drilling Company: FINLEY
Date Begun:
Date Completed:
Casing:

Hole Size	Type Sample	Core (%) Recovery	Elevation	Depth	Log	Geologic Description and Comments
6"	CUTTINGS			240		SANDSTONE: GRAY, SILTY TO VERY FINE-GRAINED.
						MUDSTONE MEMBER OF PRICE RIVER FORMATION
				250		
				260		SILTSTONE: GRAY, FIRM, SANDY, CARBONACEOUS SPECKS.
				270		
				280		SANDSTONE: GRAY, FINE-GRAINED, SUB-ANGULAR, WELL INDURATED, HARD, STREAKS OF MUDSTONE.
				290		
				300		SILTSTONE AND SANDSTONE: GRAY, FINE-GRAINED, THINLY LAMINATED.
				310		
				320		

Plate VI-8 - Pg.5 of 27



T____
R____
Lat.
____
Long.
____

Location Diagram

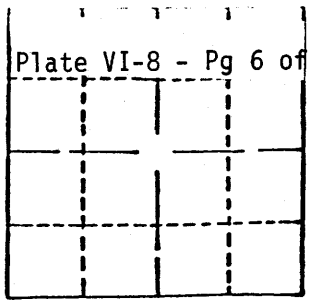
DRILL LOG

Property: [illegible] SOUTH LEASE

Hole Number: KSC-5-[illegible]-81
Collar Elevation: ____
Determined by: ____
Total Depth: ____
Total Plug Footage: ____
Total Core Footage: ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____

Sheet 5 of 13
Drilling Company: ____
Date Begun: ____
Date Completed: ____
Casing: ____

Hole Size	Type Sample	Core (%) Recovery	Elevation	Depth	Log	Geologic Description and Comments
6"	CUTTINGS			320		
				330		
				340		SANDSTONE: GRAY, LIGHT GRAY, VERY FINE TO FINE-GRAINED, HARD, WELL-CEMENTED
				350		MUDSTONE: DARK GRAY
				360		
				370		SANDSTONE: LIGHT GRAY, FINE-GRAINED.
				380		
				390		
				400		



Location Diagram

T____
R____
Lat. ____
Long. ____

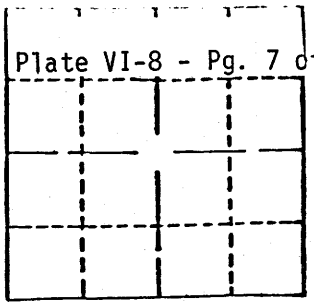
DRILL LOG

Hole Number: [illegible]-5-32-81
Collar Elevation:
Determined by:
Total Depth:
Total Plug Footage:
Total Core Footage:
Core Interval ____ Seam ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____

Property: [illegible]
Sheet 6 of 13
Drilling Company:
Date Begun:
Date Completed:
Casing:

Hole Size	Type Sample	Core (%) Recovery	Elevation	Depth	Log	Geologic Description and Comments
6"	CUTTINGS			400		
				410		
				420		SANDSTONE: GRAY, LIGHT GRAY, FINE-GRAINED, STREAKS OF MUDSTONE
				430		
				440		
				450		
				460		MUDSTONE: DARK GRAY, FIRM.
				470		
				480		

Plate VI-8 - Pg. 7 of 27



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Location Diagram

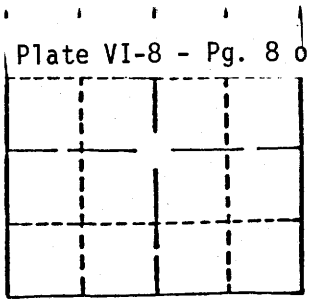
DRILL LOG

Hole Number: KSC-S-[illegible]-81
Collar Elevation:
Determined by:
Total Depth:
Total Plug Footage:
Total Core Footage:
Core Interval ____ Seam ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____

Property: [illegible] SOUTH LEASE

Sheet 7 of 13
Drilling Company: FINLEY
Date Begun:
Date Completed:
Casing:

Hole Size	Type Sample	Core (%) Recovery	Elevation	Depth	Log	Geologic Description and Comments
6"	CUTTINGS			480		
						SANDSTONE: LIGHT GRAY, FINE-GRAINED, THIN SHALE STREAKS.
				490		
				500		
				510		
				520		
						SANDSTONE: GRAY, VERY FINE-GRAINED, THIN MUDSTONE STREAKS.
				530		
				540		
				550		MUDSTONE: DARK GRAY, HARD, CARBONACEOUS.
				560		



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Location Diagram

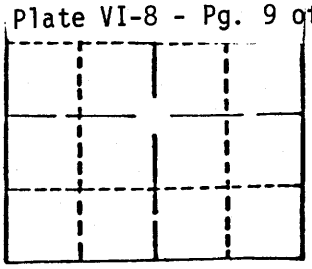
DRILL LOG

Hole Number: KSS-S-SS-81
Collar Elevation:
Determined by:
Total Depth:
Total Plug Footage:
Total Core Footage:
Core Interval ____ Seam ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____

Property: SOUTH CENTRE

Sheet 8 of 13
Drilling Company:
Date Begun:
Date Completed:
Casing:

Hole Size	Type Sample	Core (%) Recovery	Elevation	Depth	Log	Geologic Description and Comments
6"	CUTTINGS			560		568.0-748.0 SANDSTONE
						SANDSTONE: GRAY, FINE-GRAINED, WELL-INDURATED, HARD, ANGULAR GRAINS, ROSE COLORED QUARTZ GRAINS, PYRITE
				570		
						CASTLEGATE SANDSTONE
				580		
				590		
				600		
				610		
				620		SANDSTONE: GRAY, FINE TO MEDIUM-GRAINED, WELL INDURATED, HARD, ROSE QUARTZ, ANGULAR.
				630		
				640		



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Location Diagram

DRILL LOG

Hole Number: [illegible]-81
Collar Elevation:
Determined by:
Total Depth:
Total Plug Footage:
Total Core Footage:
Core Interval ____ Seam ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____

Property: [illegible] LEASE
Sheet 9 of [illegible]
Drilling Company:
Date Begun:
Date Completed:
Casing:

Hole Size	Type Sample	Core (%) Recovery	Elevation	Depth	Log	Geologic Description and Comments
6"	CUTTINGS			640		MUDSTONE: DARK GRAY, HARD, CARBONACEOUS.
				650		SANDSTONE: GRAY, MEDIUM-GRAINED, WELL INDURATED.
				660		
				670		
				680		
				690		
				700		
				710		
				720		

Plate VI-8 - Pg. 10 of 27

DRILL LOG

Property: [illegible] SOUTH LEASE

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Location Diagram

Hole Number: KSS-S-35-81
Collar Elevation:
Determined by:
Total Depth:
Total Plug Footage:
Total Core Footage:
Core Interval ____ Seam ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____

Sheet 10 of 13
Drilling Company:
Date Begun:
Date Completed:
Casing:

Hole Size	Type Sample	Core (%) Recovery	Elevation	Depth	Log	Geologic Description and Comments
6"	CUTTINGS			720		
						MUDSTONE: DARK GRAY, BLACK, COAL FRAGMENTS, CARBONACEOUS.
				730		
				740		
						743.0 - 878.0 SILTSTONE, MUDSTONE & SANDSTONE
				750		MUDSTONE: BLACK, COAL FRAGMENTS
				760		SANDSTONE: GRAY, VERY FINE-GRAINED, CARBONACEOUS.
						UPPER MUDSTONE MEMEBER OF BLACKHAWK FORMATION
				770		
				780		
				790		MUDSTONE: DARK GRAY, BLACK, COAL FRAGMENTS.
				800		

Location Diagram

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DRILL LOG

Hole Number: [illegible]
Collar Elevation: ____
Determined by: ____
Total Depth: ____
Total Plug Footage: ____
Total Core Footage: ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____

Property: [illegible]
SOUTHLEHIGH

Sheet 11 of 13
Drilling Company: ____
Date Begun: ____
Date Completed: ____
Casing: ____

Hole Size	Type Sample	Core (%) Recovery	Elevation	Depth	Log	Geologic Description and Comments
6"	CUTTINGS			800		SANDSTONE AND MUDSTONE: GRAY, DARK GRAY, BLACK.
				810		
				820		
						ABUNDANT COAL FRAGMENTS, ROTE.
				830		
				840		
				850		COAL
						SANDSTONE: GRAY, FINE-GRAINED, SPECKLED WITH BLACK MINERAL, PYRITE.
				860		
				870		
				880		878.0-937.8 SANDSTONE

DRILL LOG

Project: [illegible] SOUTH CERRIE

Hole Number: [illegible]-81
Collar Elevation:
Determined by:
Total Depth:
Total Plug Footage:
Total Core Footage:
Core Interval Seam
Core Interval Seam
Core Interval Seam

Sheet 12 of 13
Drilling Company:
Date Begun:
Date Completed:
Casing:

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Location Diagram

Hole Size	Type Sample	Core (%) Recovery	Elevation	Depth	Log	Geologic Description and Comments
6" 4" PIPE	CUTTINGS	COMMENCE CORE AT 894' 6" HOLE REAMED TO 939'		880 890		SANDSTONE: GRAY, FINE-GRAINED, SUB-ANGULAR, FRIABLE, SPECKLED. GRASSY MEMBER OF BLACKHAWK FORMATION
	3" CORE	CORE RUN #1 894.0'-909.0' CUT 15.0' REC. 15.0'		900		894.0-937.8 SANDSTONE: GRAY, FINE TO MEDIUM-GRAINED, WELL SORTED, SPECKLED WITH BLACK MINERALS, PARTINGS ALONG CROSS-BEDDING. BORROWED AND REWORKED IN LOWER SECTION.
	CEMENT BASKET	CORE RUN #2 909.0'-924.0' CUT 15.0' REC. 15.0'		910 920		
	CEMENT BASKET	CORE RUN #3 924.0'-939.0' CUT 15.0' REC. 15.0'		930		UNEVEN CONTACT
		CORE RUN #4 939.0'-954.0' CUT 15.0' REC. 15.0'		940		937.8-944.4 COAL (6.6) BLACK, DULL TO VERY BRIGHT, TOUGH AND FRACTURED, CALCITE, PYRITE SUNNYSIDE SEAM SHARP CONTACT
				950		944.4-952.8 MUDSTONE: DARK GRAY, FILM, MASSIVE, COAL LENSE AND BLEBS. 5.4 COAL AT 950.0 UNEVEN CONTACT
OPEN 4 7/8"		CORE RUN #5		960		952.8-956.4 (COAL 3.6): BLACK, DULL TO BRIGHT, PYRITE. LOWER SEAM SHARP CONTACT 956.4-969.0 SANDSTONE, GRAY, BROWN FINE TO MEDIUM-GRAINED.

Plate VI-8 - Pg. 13 of 27

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Location Diagram

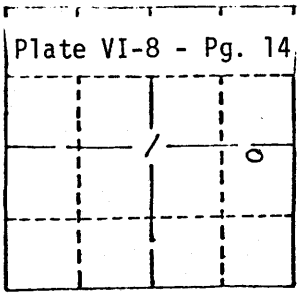
DRILL LOG

Property: [illegible] SOUTH GEAGE

Hole Number: KSS-S-33-81
Collar Elevation:
Determined by:
Total Depth:
Total Plug Footage:
Total Core Footage:
Core Interval ____ Seam ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____

Sheet 13 of 13
Drilling Company: FINLEY
Date Begun:
Date Completed:
Casing:

Hole Size	Type Sample	Core (%) Recovery	Elevation	Depth	Log	Geologic Description and Comments
4 7/8"	3" CORE	954.0'–969.0' CUT. 15.0' REC. 15.0'		960		PYRITE SUNNYSIDE SANDSTONE
				970		DRILLER'S DEPTH: 969' E-LOG DEPTH: 966' FLUID LEVEL: 8-13-81; 957' STEEL PIPE SET: 8-13-81 CEMENTED: 8-14-81 BOTTOM 20 FEET OF PIPE SLOTTED WITH 1/2 INCH HOLES 1 FOOT APART ON 180 DEGREE CENTERS. ANNULUS CEMENTED TO SURFACE FROM 929 FEET. FLUID LEVEL: 9-14-81; 736'



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Location Diagram
1,960'FSL - 850'FEL

DRILL LOG

Property: SOUTH CANYON

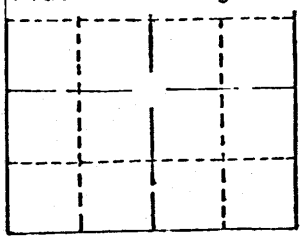
Hole Number: KSC-S-27-80
Collar Elevation: 6309.5'
Determined by: SURVEY
Total Depth: 280'
Total Plug Footage: 205'
Total Core Footage: 75'
Core Interval 249.9-258.1 Seam SUNNYSIDE
Core Interval 262.9-267.0 Seam LOWER
Core Interval _____ Seam _____

Sheet 1 of 4
Drilling Company: FINLEY
Date Begun: JULY 12, 1980
Date Completed: JULY 13, 198
Casing: 40' OF 6 7/8"

COMPOSITE
SCALE 1" = 10'

Hole Size	Type Sample	Core (%) Recovery	FT. Elevation	FT. Depth	Log	FT. Geologic Description and Comments
6" CASING 40'	CUTTINGS		6309.5	0		LOG INTERPRETATION FROM CUTTINGS AND E-LOG TO 205'.
			6300	10		ALLUVIUM: LIGHT BROWN SILT AND GRAVEL.
				20		SMALL AMOUNT OF WATER AT BASE OF ALLUVIUM.
				30		30.0-97.0 SANDSTONE AND SILTSTONE. LOG INTERPRETATION FROM CUTTINGS AND E-LOG. SANDSTONE: WHITE TO LIGHT GRAY, FINE TO MEDIUM-GRAINED, WELL SORTED.
5 7/8" FOAM + WATER				40		SANDSTONE: LIGHT GRAY, FINE-GRAINED WITH SILTY SHALE LAMINATIONS.
				50		CASTLEGATE SANDSTONE
			6250	60		SANDSTONE: LIGHT GRAY, SILTY TO FINE-GRAINED, SHALE LAMINATIONS.
				70		
				80		

Plate VI-8 - Pg. 15 of 27



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Location Diagram

[illegible]

DRILL LOG

Property: SUNNYSIDE SOUTH LEASE

Hole Number: KSC-S-27-80
Collar Elevation: ____
Determined by: ____
Total Depth: ____
Total Plug Footage: ____
Total Core Footage: ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____

Sheet 2 of 4
Drilling Company: ____
Date Begun: ____
Date Completed: ____
Casing: ____

Hole Size	Type Sample	Core (%) Recovery	Elevation	Depth	Log	Geologic Description and Comments
5 7/8"	CUTTINGS			80		SANDSTONE: LIGHT GRAY, SILTY TO FINE-GRAINED, MODERATE WELL CEMENTED, SILTY SHALE LAMINATIONS.
				90		
						97.0 - 200.0 INTERBEDDED SILTSTONE, SANDSTONE, MUDSTONE AND THIN COAL.
				100		MUDSTONE: BLACK TO DARK GRAY, SILTY, SANDY, SHALY, CARBONACEOUS, COALY.
						UPPER MUDSTONE MEMBER OF BLACKHAWK FORMATION
			6200	110		
				120		SANDSTONE: LIGHT GRAY, VERY FINE TO FINE GRAINED, MODERATE TO WELL CEMENTED, SHALE LAMINATIONS.
				130		
						MUDSTONE AND SILTSTONE: BLACK TO DARK GRAY, SANDY, CARBONACEOUS, FINE SANDSTONE LAMINATIONS.
				140		
						SANDSTONE: LIGHT GRAY, VERY FINE-GRAINED, INTERLAMINATED, WITH SANDY SILTSTONE.
				150		
			6150	160		

Plate VI-8 - Pg. 16 of 27

DRILL LOG

Property: SUNNYSIDE SOUTH LEASE

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Location Diagram

Hole Number: KSC-S-87-80
Collar Elevation:
Determined by:
Total Depth:
Total Plug Footage:
Total Core Footage:
Core Interval _____ Seam _____
Core Interval _____ Seam _____
Core Interval _____ Seam _____

Sheet 3 of 4
Drilling Company:
Date Begun:
Date Completed:
Casing:

Hole Size	Type Sample	Core (%) Recovery	Elevation	Depth	Log	Geologic Description and Comments
5 7/8"	CUTTINGS			160		
				170		SILTSTONE: BLACK, BRITTLE, MODERATLY HARD, SANDY.
				180		MUDSTONE: BLACK, CARBONACEOUS, COALY.
				190		SANDSTONE: GRAY, VERY FINE TO FINE GRAINED, SHALE LAMINATIONS.
				200		200.0 - 249.9 SANDSTONE. SANDSTONE: GRAY, FINE TO MEDIUM-GRAINED, MODERATE TO POORLY CEMENTED, SUGARY APPEARANCE, DARK COLORED GRAINS ALONG LOW ANGLE CROSS-BEDDING, WELL SORTED, CARBONACEOUS LAMINATIONS, PYRITE.
4 7/8"	3" CORE	CORE RUN #1 205.0'-220.0' CUT. 15.0' REC. 15.0'	6100	210		GRASSY MEMBER OF BLACKHAWK FORMATION
		CORE RUN #2 220.0'-235.0' CUT. 15.0' REC 15.0		220		
				230		SHARP CONTACT SANDSTONE: GRAY, SHALE LAMINATIONS, HIGHLY CONTORTED BEDDING, BURROWED, TRACES OF PYRITE.
				240		

Plate VI-8 - Pg. 17 of 27

DRILL LOG

SOUTH LEASE

Location Diagram

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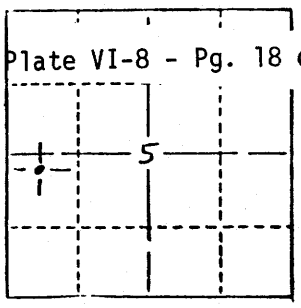
Long.

Hole Number: NSC-S-27-80
Collar Elevation:
Determined by:
Total Depth:
Total Plug Footage:
Total Core Footage:
Core Interval _____ Seam _____
Core Interval _____ Seam _____
Core Interval _____ Seam _____

Sheet 4 of 4
Drilling Company:
Date Begun:
Date Completed:
Casing:

Hole Size	Type Sample	Core (%) Recovery	Elevation	Depth	Log	Geologic Description and Comments
47/8"	3" CORE	CORE RUN #3 235.0-250.0' CUT. 15.0' REC. 15.0'		240		SANDSTONE: GRAY, FINE-GRAINED, CONTORTED BEDDING
						SANDSTONE: GRAY, FINE-GRAINED, CONTORTED BEDDING, BURROWED
	TUBE 1 OF 5 COAL	CORE RUN #4 250.0-265.0 CUT 15.0' REC 15.0'	6059.6	250		249.9-258.1 COAL: MODERATE BRIGHT TO BRIGHT, BANDED, GOOD CLEAT IN ONE DIRECTION, SOME DULL BANDING. SUNNYSIDE MAIN SEAM
	TUBE 2 OF 5 COAL					BONE TO SHALY COAL, SANDY MUDSTONE
	3 OF 5					
			6050	260		258.1-262.9 SANDSTONE AND MUDSTONE. GRAY TO BLACK, CARBONACEOUS MUDSTONE. CONTORTED SANDSTONE. PYRITE.
	TUBE 4 OF 5 COAL		6046.6			262.9-267.0 COAL: MODERATE BRIGHT TO BRIGHT, GOOD CLEAT IN ONE DIRECTION, CALCITE ON CLEAT SURFACES. LOWER SEAM
	5 OF 5	CORE RUN #5 265.0-279.95 CUT 14.95' REC 14.95'	6042.5	270		267.0- SANDSTONE: GRAY, FINE-GRAINED, WELL SORTED, SLIGHT CARBONACEOUS, PYRITE. SUNNYSIDE SANDSTONE
				280		DRILLERS DEPTH: 280.0' E-LOG DEPTH: 279.0' FLUID LEVEL: 7-27-80; 159' CEMENTED WITH 64 SACKS PORTLAND CEMENT: 8-11-80
				290		
				300		
				310		
				320		

Plate VI-8 - Pg. 18 of 27



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DRILL LOG

Property: South Lease

Hole Number: S-14
Collar Elevation: 6630
Determined by: Aerial Survey
Total Depth: 1430
Total Plug Footage: 1300
Total Core Footage: 130
Core Interval _____ Seam _____
Core Interval _____ Seam _____
Core Interval _____ Seam _____

Sheet 1 of 10
Drilling Company: Boyles
Date Begun: 12/3/74
Date Completed: 12/22/74

Hole Size	Type Sample	Core (%) Recovery	Depth	Log	Elev.	Geologic Description and Comments
6" CSG.	CUTTINGS				6630	0'-10' yellow-orange sandy soil
			10			
			20			
5 5/8" AIR			30		6600	10'-60' Ss, Lt gray-brown, sub rounded
1,300' OF 4" CSG LEFT IN HOLE			40			
			50			
			60			60'-70' fg Ss 70% / sts 30%
			70			70'-80' vfg Ss
			80			80'-90' sts w/5% mg Ss
			90			
			100			H_2O 90'-110' vfg Ss w/5-10% mafics
			110			110'-120' sts w/5% vfg Ss
			120			
			130		6500	120'-140' sts
			140			140'-150' sts w/60% vfg Ss
			150			150'-160' carb mst
			160			160'-180' vfg Ss
			170			
			180			180'-200' carb sts
			190			
			200			

T___
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DRILL LOG

Property: SOUTH LEASE

Hole Number: S-14
Collar Elevation:
Determined by:
Total Depth:
Total Plug Footage:
Total Core Footage:
Core Interval _____ Seam _____
Core Interval _____ Seam _____
Core Interval _____ Seam _____

Sheet 2 of 10
Drilling Company:
Date Begun:
Date Completed:

Hole Size	Type Sample	Core (%) Recovery	Depth	Log	Elev.	Geologic Description and Comments
			210			200'-220' Lt gray sts w/15% Ss
			220			
			230		6400	220'-240' Lt gray mst/Ss 10%/sst 40%
			240			
			250			240'-250' Lt gray mst/Ss 5%
						250'-260' dk gray mst
			260			260'-270' dk gray mst 60%/vfg Ss 40%
			270			270'-280' Lt gray fg Ss
			280			280'-290' dk gray mst 80%/Lt gray fg Ss 20%
			290			290'-300' dk gray mst 15%/Lt gray fg Ss 85%
			300			300'-310' Lt gray mst 80%/Ss 20%
			310			
			320			310'-320' Lt gray sts.
			330		6300	320'-330' gray sts 90%, gray mst 10%
			340			
			350			330'-370' dk gray mst
			360			
			370			
			380			370'-400' dk gray sts
			390			
			400			

T____
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N E

DRILL LOG

Property: SOUTH LEASE

Hole Number: S-14
Collar Elevation:
Determined by:
Total Depth:
Total Plug Footage:
Total Core Footage:
Core Interval _____ Seam _____
Core Interval _____ Seam _____
Core Interval _____ Seam _____

Sheet 3 of 10
Drilling Company:
Date Begun:
Date Completed:

Hole Size	Type Sample	Core (%) Recovery	Depth	Log	Elev.	Geologic Description and Comments
						400'-410' sts 60% / mst 40%
AIR MIST			410			
			420			
MUD			430		6200	410'-450' dk gray mst grading down to sts,
			440			
			450			
			460			450'-500' dk gray sts w/few grains Mq Qtz Ss
			470			
			480			
			490			
			500			LOST CIRCULATION
						500'-510' dk gray sts / 90% gray Ss
			510			
			520			510'-520' Mq Ss
						520'-530' Lt gray mst 80% / Mq Ss 20%
			530		6100	
			540			530'-560' Lt gray well consolidated Fg Ss w/5% gray mst.
			550			
			560			
			570			560'-590' disorganized Qtz Mq Ss
			580			
			590			590'-600' dk gray mst 60% / Lt gray sts. 10% w/30% Fg Ss
			600			

Plate Vi-8 - Pg. 21 of 27

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DRILL LOG

Property: SOUTH LEASE

Hole Number: S-14
Collar Elevation:
Determined by:
Total Depth:
Total Plug Footage:
Total Core Footage:
Core Interval ____ Seam ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____

Sheet 4 of 10
Drilling Company:
Date Begun:
Date Completed:

Hole Size	Type Sample	Core (%) Recovery	Depth	Log	Elev.	Geologic Description and Comments
			610			
			620			600'-640' vfg Ss, Qtz, lt gray, 95% / 5% mst
			630		6000	
			640			
			650			640'-650' mst, silty, dk gray, well indurated
			660			650'-680' mst 80% / qtz Ss 20%
			670			
			680			
			690			680'-710' Ss fg, lt gray mafics < 1%
			700			
			710			710'-720' mst, dk gray
			720			
			730		5900	720'-730' Ss, mg, gray disaggregated w/5% mst 730'-740' mst, well indurated w/5% Ss mg
			740			
			750			740'-760' mst dark gray
			760			
			770			760'-770' mst / Ss
			780			770'-800' Ss, med gray, disaggregated
			790			
			800			

DRILL LOG

Property: SOUTH LEASE

Plate VI-8 - Pg. 22 of 27

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Hole Number: S-14
Collar Elevation:
Determined by:
Total Depth:
Total Plug Footage:
Total Core Footage:
Core Interval ___ Seam ___
Core Interval ___ Seam ___
Core Interval ___ Seam ___

Sheet 5 of 10
Drilling Company:
Date Begun:
Date Completed:

Hole Size	Type Sample	Core (%) Recovery	Depth	Log	Elev.	Geologic Description and Comments
						800'-810' sts/vfg Ss 35%/mst
			810			
			820			810'-830' NO SAMPLE
			830		5800	
			840			830'-840' dk gray mst
						840'-850' dk gray mst/20% Lt gray sts
			850			850'-860 mst/sts
			860			860'-870' mst 60%/sts 40%
			870			
						870'-880' gray mst
			880			
			890			
						880'-920' mst 60%/sts 40%
			900			
			910			
			920			
						920'-940' sts/mst
			930		5700	
			940			
						940'-950' dk gray mst 80%/Ss 20% vfg
			950			950'-960' dk gray mst 60%/Ss 40% vfg
			960			
						960'-970' dk gray mst/Lt gray sts
			970			970'-980' sts/vfg Ss
			980			
						980'-1000' Ss vfg 60%/green mst 40%
			990			
			1000			

T___
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N E

DRILL LOG

Property: SOUTH LEASE

Hole Number: S-14
Collar Elevation:
Determined by:
Total Depth:
Total Plug Footage:
Total Core Footage:
Core Interval ____ Seam ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____

Sheet 6 of 10
Drilling Company:
Date Begun:
Date Completed:

Hole Size	Type Sample	Core (%) Recovery	Depth	Log	Elev.	Geologic Description and Comments
			1010			1000'-1020' sst lt gray /vfg Ss 75%
			1020			
			1030		5600	1020'-1040' Lt gray Qts vfg Ss/green mst 25%
			1040			
			1050			1040'-1060' Ss, gray qts, vfg / mst 35% tfeS
			1060			
			1070			1060'-1070' mst, dk gray 60% / vfg Ss 40% unconsolidated.
			1080			
			1090			1080'-1100' mst dk gray w/60% vfg Ss
			1100			1100'-1110' mst/ss
			1110			1110'-1120 mst 10% / Ss mg 90%
			1120			
			1130		5500	1120'-1150' gray-green mst 90% w/5% Ss, orange-tan / 5% wh Qtz Ss
			1140			
			1150			
			1160			1150'- 1230' vfg Ss
			1170			
			1180			
			1190			
			1200			

Plate VI-8 - Pg. 24 of 27

T___
R___

N E

DRILL LOG

Property: SOUTH LEASE

Hole Number: S-14
Collar Elevation:
Determined by:
Total Depth:
Total Plug Footage:
Total Core Footage:
Core Interval ____ Seam ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____

Sheet 7 of 10
Drilling Company:
Date Begun:
Date Completed:

Hole Size	Type Sample	Core (%) Recovery	Depth	Log	Elev.	Geologic Description and Comments
			1210			1150'-1230' (See sheet 6)
			1220			
			1230		5400	CASTLEGATE
					5392	BLACKHAWK
			1240			1230'-1250' vfg Ss 60%/mst 40%
			1250			1250'-1260' mst 80% / qtz Ss fg 20%
			1260			1260'-1280' lt gray mst w/5% sst
			1270			CEMENT DRILLED 1,270-1,300
			1280			
4" CSG	CUTTINGS	scale change	1290			1280'-1300' sst/mst/ss
			1300			
3.7	NC	90%				1300'-1301'6" sh, dark gray 2" coal at base
						1301'6"-1303 sts, dark gray
						1303'-1303'8" convolute vfgSs 80%/sst 20%
						1303'8"-1304'8" dk gray sts
						1304'8"-1305' mst, coaly
			1305			1305'-1307' : 1" coal, 5" coaly mst, 6" vfgSs, 6" gray sts, 3" conv. Ss/sts 15%
						1307'-1310' sts, dark gray
			1310			
		100%				1310'-1312' sts/vfgSs, interbedded, fissile mottled 1311'-1312'
						1312'-1312'10" Ss vfg
			1315			1312'10"-1317' mst, carb, grading down into dk gray sts, abund. coal lenses top 1'
						1317'-1320' sts carb w/vfg Ss bands 2" ea 6" apart
			1320			1320'-1321'6" interbedded vfgSs/sts, fissile
						1321'6"-1321'9" coal
						1321'9"-1322'3" mst, coaly
						1322'3"-1323'3" sts
			1325			1323'3"-1325' 9" interbedded Ss/sts, 1' carb mst

Plate VI-8 - 25 of 27

T ___
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DRILL LOG

Property: SOUTH LEASE

Hole Number: 5-14
Collar Elevation:
Determined by:
Total Depth:
Total Plug Footage:
Total Core Footage:
Core Interval ____ Seam ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____

Sheet 8 of 10
Drilling Company:
Date Begun:
Date Completed:

Hole Size	Type Sample	Core (%) Recovery	Depth	Log	Elev.	Geologic Description and Comments
						1325'-1326' carb, coaly mst
						1326'-1326'5" Ss vfg
						1326'5"-1327'5" carb sts
			1330			1327'5"-1332'8" interbedded vfg Ss/sts poorly developed fissility
						1332'8"-1333'6" vfg Ss/sts, mottled
			1335			1333'6"-1335' vfg Ss
						1335'-1337'6" Interbedded vfg Ss/sts 30%
						1337'6"-1340' sts dark gray
			1340			
					5287	1340'-1343'1" Interbedded vfg Ss/sts 30%
		100%	1345			
			1350			
						1343'1"-1388'7" Ss, mg, poorly indurated thin planar bedding to 1353', x-bedding increasing w/depth, becomming cg w/depth
			1355			
			1360			
			1365			
			1370			
			1375			

Plate VI-8 - Pg. 26 of 27

T___
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DRILL LOG

Property: SOUTH LEASE

Hole Number: S-14
Collar Elevation:
Determined by:
Total Depth:
Total Plug Footage:
Total Core Footage:
Core Interval ____ Seam ____
Core Interval ____ Seam ____
Core Interval ____ Seam ____

Sheet 9 of 10
Drilling Company:
Date Begun:
Date Completed:

Hole Size	Type Sample	Core (%) Recovery	Depth	Log	Elev.	Geologic Description and Comments
			1380			1343'-1388'7" (See sheet 8), good fissility bottom 3' of unit
		100%	1385			
					5241.9	
			1390			1388'7"-1392'7" Interbedded vfg Ss/sts 35% mottled, contorted, poor fissility
						1392'7"-1394'1" sts Light gray
						1394'1"-1394'1½" coal
			1395			1394'1½"-1396'2" LT gray sts-mst slightly mottled
						1396'2"-1396'7½" thin interbedded carb mst/sts
					5233.4	TOP OF SEAM
			1400			1396'7½"-1401'8½" Coal
					5228.3	1401'8¼"-1402'4¾" Interbedded carb mst/sts
			1405			1402'4¾"-1402'11¼" Coal
						1402'11¼"-1403'3¾" sts, carb
						1403'3¾"-1404'1¾" coaly, carb sts
						1404'1¾"-1405'2" convolute fg Ss/mst (FeS2 in Ss)
						1405'2"-1406'5" mottled fg Ss/mst
			1410			
						1406'5"-1416'3" Ss mg w/carb lam on indistinct x-bedding at top becoming more distinct with depth
			1415			
						1416'3"-1418' Interbedded carb Ss/mst
			1420			
						1418'-1430' Ss fg w/irregular LS x-bedding
			1425			

Plate VI-8 - Pg. 27 of 27

T____
R____

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DRILL LOG

Property: SOUTH LEASE

Hole Number: S-14
Collar Elevation:
Determined by:
Total Depth:
Total Plug Footage:
Total Core Footage:
Core Interval _____ Seam _____
Core Interval _____ Seam _____
Core Interval _____ Seam _____

Sheet 10 of 10
Drilling Company:
Date Begun:
Date Completed:

Hole Size	Type Sample	Core (%) Recovery	Depth	Log	Elev.	Geologic Description and Comments
			1430		5200	BOTTOM OF HOLE 7 SACKS CEMENT

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DIV. OF OIL, GAS & MINING

KAISER STEEL CORPORATION

SOUTH LEASE COAL PROPERTY

EMERY COUNTY, UTAH

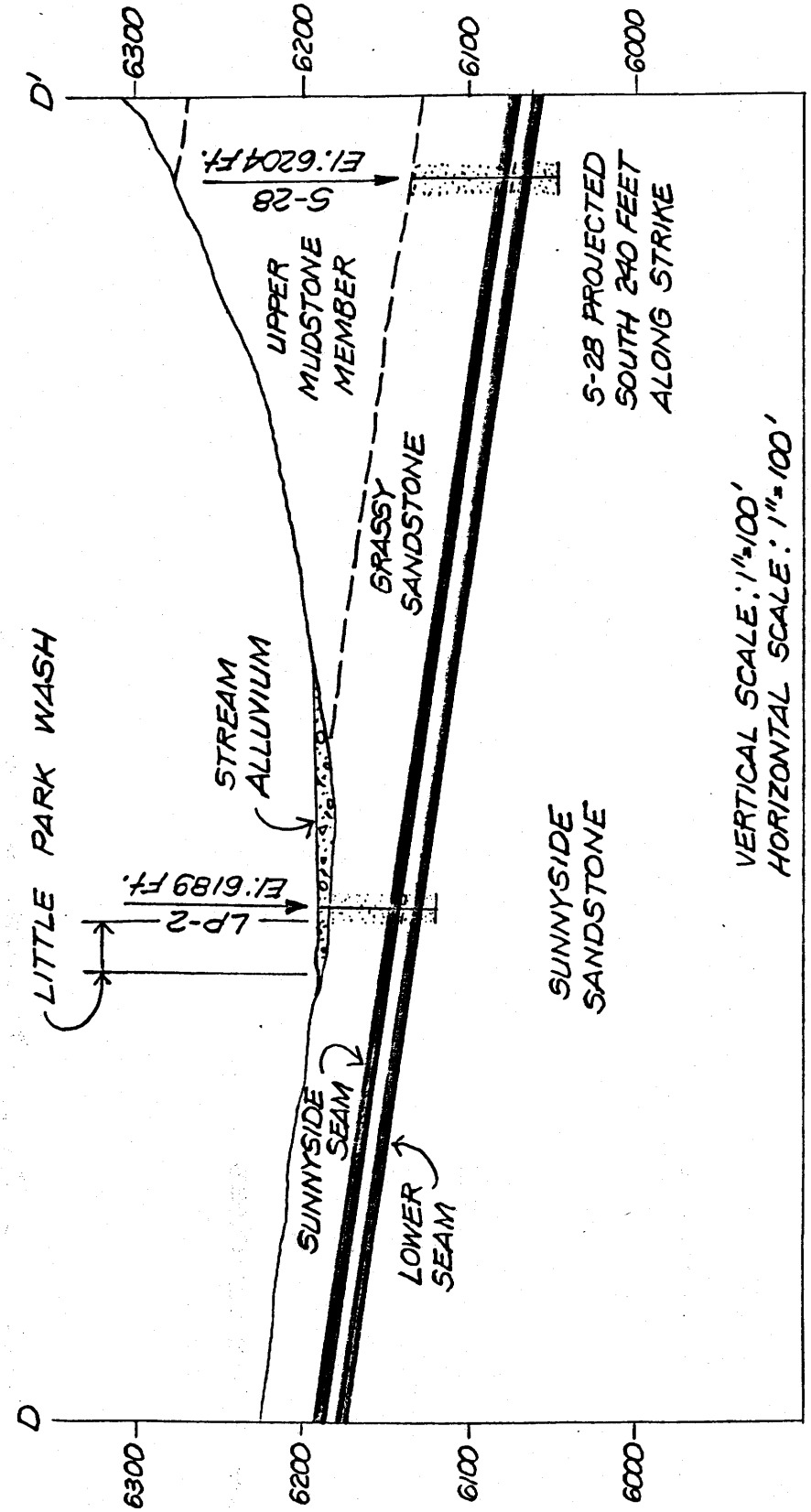
TYPICAL CROSS SECTIONS LITTLE PARK WASH

(SEE PLATE VI-7 FOR LOCATION)

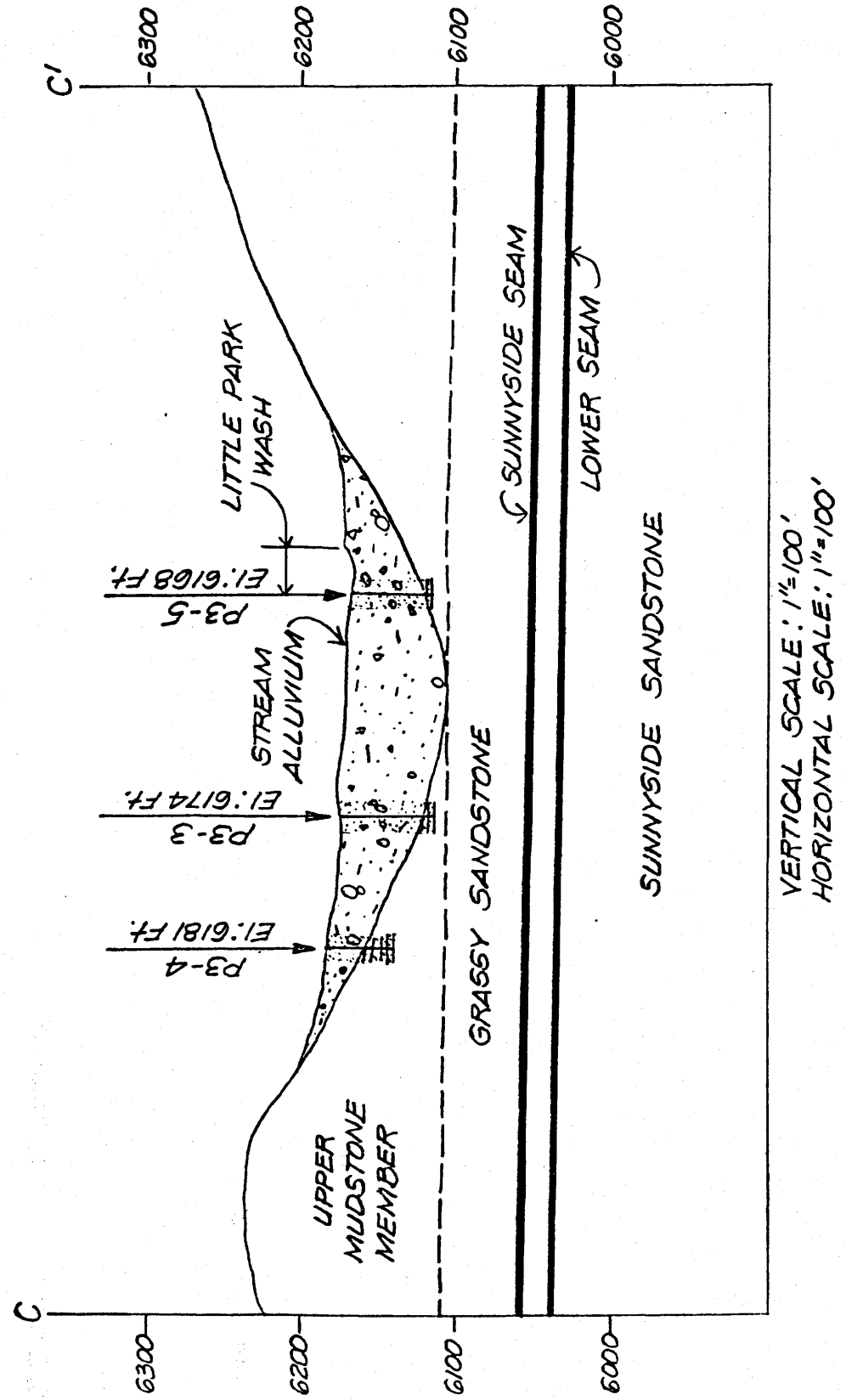
SCALE: 1" : 2000'

DATE: OCT., 1981

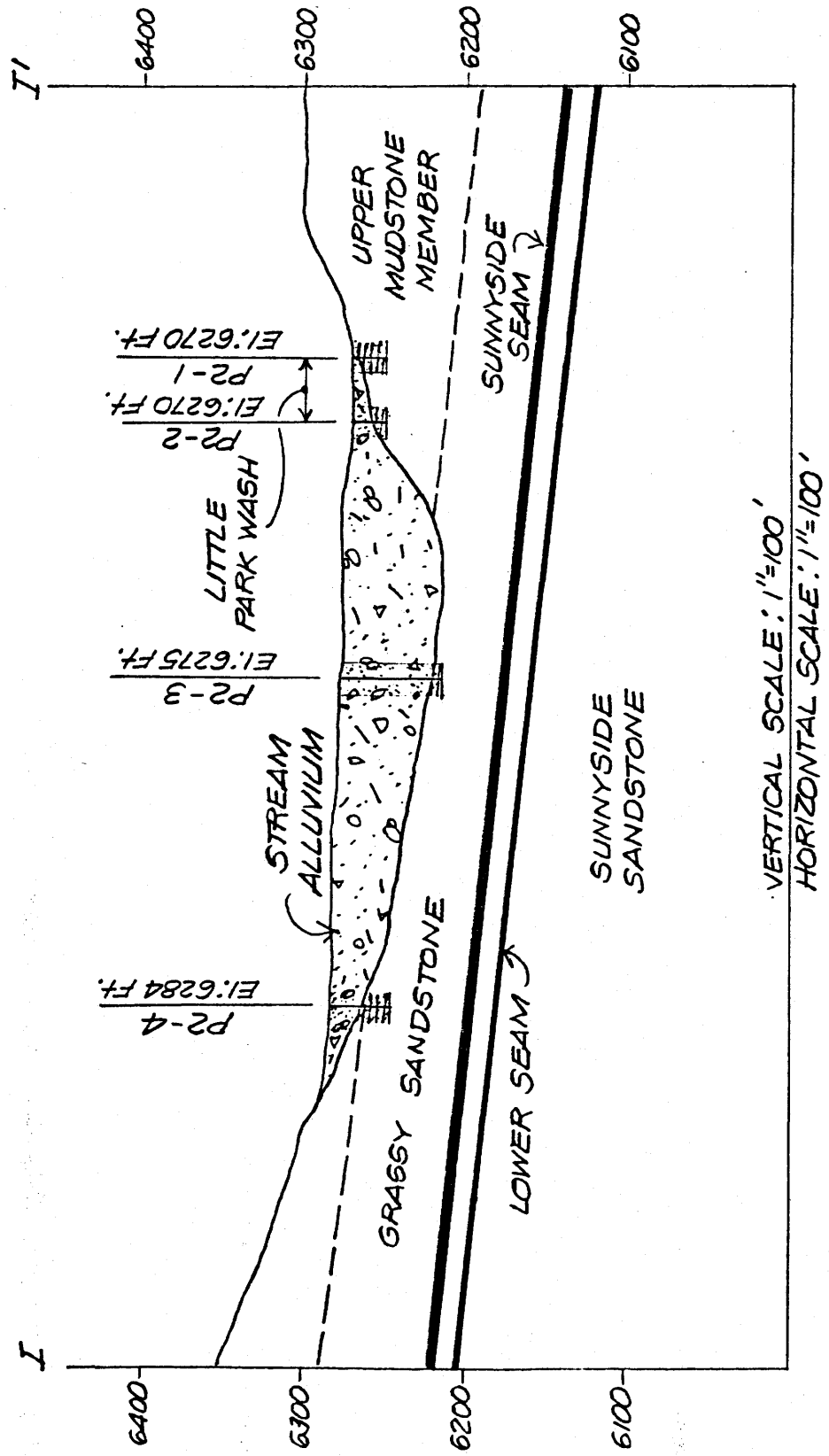
PLATE VI-12



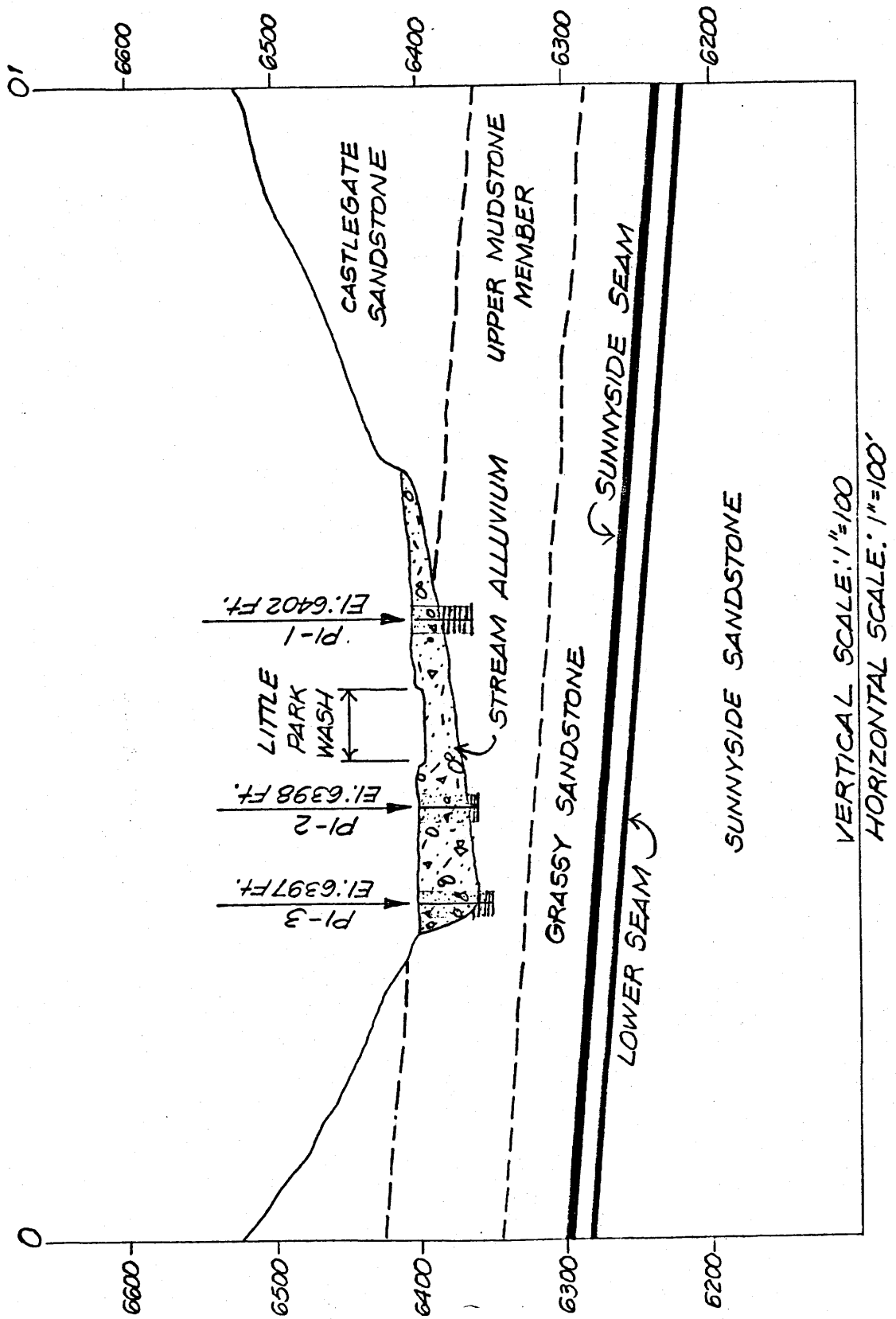
KAISER STEEL CORPORATION
SOUTH LEASE
8-21-81



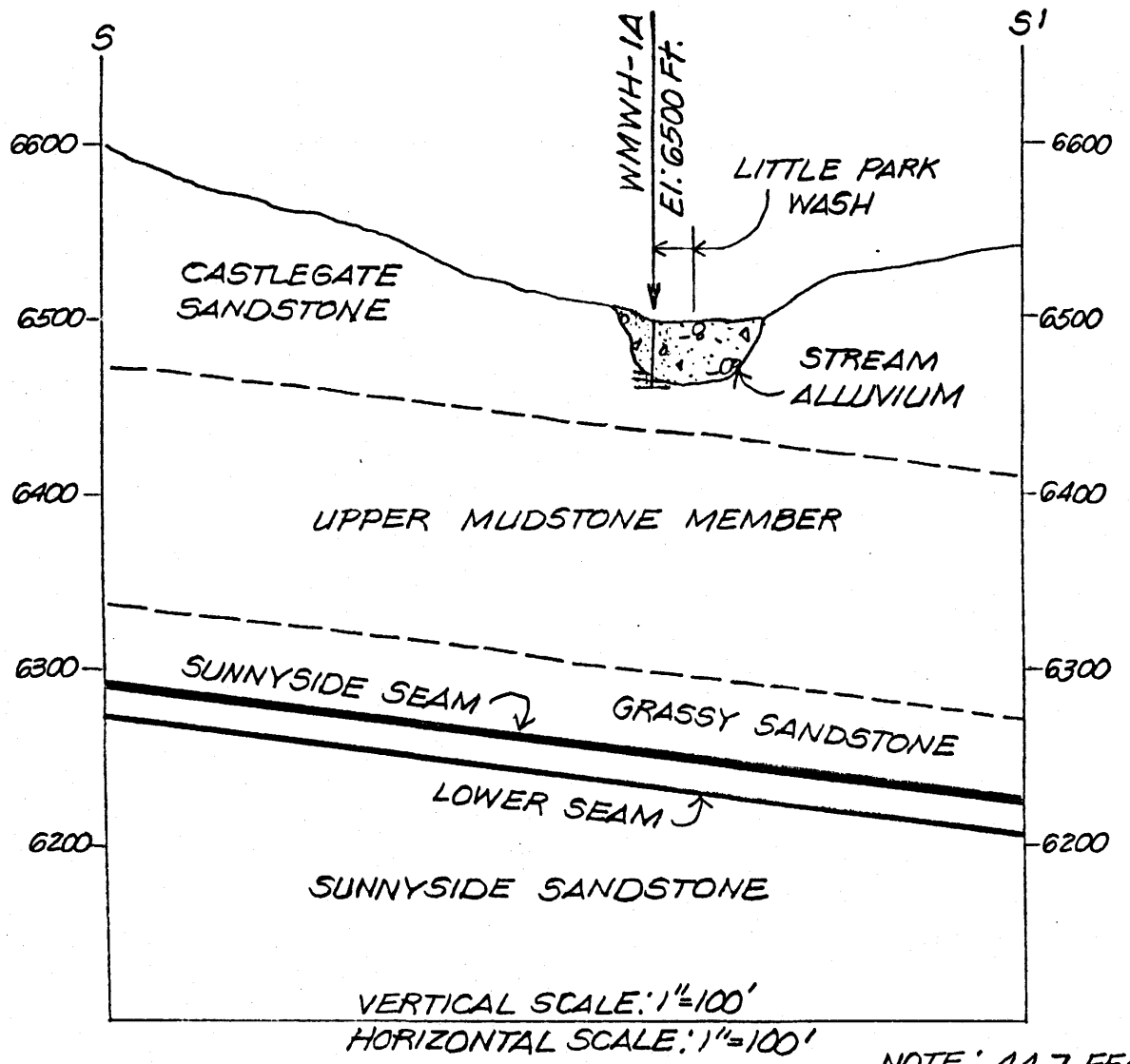
KAISER STEEL CORPORATION
SOUTH LEASE
8-19-81



KAISER STEEL CORPORATION
SOUTH LEASE
8·31·81



KAISER STEEL CORPORATION
SOUTH LEASE
9·4·81



NOTE: 44.7 FEET OF 4 INCH PVC PIPE SET IN HOLE. BOTTOM 20 FEET PERFORATED WITH 1/4 INCH HOLES 6 INCHES APART ON 180 DEGREE CENTERS. CREST STAFF GAUGE PLACED ON BOTH SIDES OF WASH, NO WATER 9-3-81

KAISER STEEL CORPORATION
SOUTH LEASE

9.5.81

KAISER STEEL CORPORATION

SOUTH LEASE COAL PROPERTY

EMERY COUNTY, UTAH

FEB 2 0 2004
DIV. OF OIL, GAS & MINING

WATER QUALITY

MINE PLAN AREA BASELINE DATA

SCALE: 1" : 2000'

DATE: OCT., 1981

PLATE VII-3

Water Samples and Observations - South Lease Coal Property
(For Locations refer to Plate VII-2 Water Resources Map)

Date	No. 14 Williams Draw	No. 16 Above S-17	WMH-1a Total Depth 44.8'	WHH-2a Total Depth 43.3'	WMH-3d Surface EL: 6567'	CSG-1 Highest Level Noted	CSG-2 Highest Level Noted	CSG-3 Highest Level Noted	No. 22 Below S-17
1981 3-Quar.	>1g/m	>1g/m	Dry	Level=42.0'	Level=736'	2' Noted	2' Noted	None	Dry
4-Quar. 12/9/81	Trickle Sampled	>1g/m Sampled	Dry(mud)	Level=38.3'	Level=731'	None	20" Noted	20" Noted	Dry

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location: T.16 S., R.14E. SLM, SEC.1, NWSE

Map No.: /	1						
Data Parameters							
Elevation (FT) TOPO	7,600						
Geologic Unit	C						
Water Use LIVESTOCK							
Date	9/9/81						
Data Source: KSC FIELD	FORD						
Discharge in gal/min	1						
Temp. °C, °F	12 54						
Turbidity NTV	.78						
Conductivity umhos/cm	740						
pH Units	8.20						
Total Dissolved Solids mg/l	481						
Total Suspended Solids mg/l	12.0						
Acidity as $CaCO_3$ mg/l	1520						
Alkalinity as $CaCO_3$ mg/l	314.00						
Ammonia as NA_3-N mg/l	<.01						
Arsenic as As mg/l	.002						
Barium as Ba mg/l	.285						
Bicarbonate as HCO_3 mg/l	383.08						
Boron as B mg/l	.040						
Cadmium as Cd mg/l	<.001						
Calcium as Ca mg/l	64.00						
Carbon Dioxide as CO_2 mg/l							
Carbonate as CO_3 mg/l	<.01						
Chloride as Cl mg/l	30.00						
Chromium as Cr (Hex) mg/l	<.001						
Chromium as Cr (Tot) mg/l	<.001						
Copper as Cu mg/l	.010						

SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location:

Map No.: /	/						
Fluoride as F mg/l	.19						
Hardness as $CaCO_3$ mg/l	340						
Hydroxide as OH mg/l	<.01						
Iron as Fe (Dissolved) mg/l	.050						
Iron as Fe (Total) mg/l	.130						
Lead as Pb mg/l	<.001						
Magnesium as Mg mg/l	43.20						
Manganese as Mn mg/l	.020						
Mercury as Hg mg/l	<.0002						
Nickel as Ni mg/l	<.001						
Nitrate as NO_3-N mg.k	.27						
Nitrite as NO_2-N mg/l	<.01						
Phosphate PO_4-P Ortho mg/l	<.001						
Potassium as K mg/l	11.50						
Selenium as Se mg/l	.004						
Silica as SiO_2 (Dissolved) mg/l	2.00						
Silver as Ag mg/l	<.001						
Sodium as Na mg/l	46.00						
Sulfate as SO_4 mg/l	90.0						
Zinc as Zn mg/l	.008						
Oil and Grease	<.01						

Note:
Alluvium = AL
Colton Formation = C
North Horn-Flagstaff Formation = NHF

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location: T. 16 S., R. 14E., SEC. 1 SE¼ W

Map No.: 3	3						
Data Parameters							
Elevation (FT) TOPO	7,440						
Geologic Unit	C						
Water Use LIVESTOCK							
Date	9/9/81						
Data Source: KSC FIELD DATA							
Discharge in gal/min	1						
Temp. °C, °F	19 66						
Turbidity NTV	.82						
Conductivity umhos/cm	760						
pH Units	8.30						
Total Dissolved Solids mg/l	492						
Total Suspended Solids mg/l	5.0						
Acidity as $CaCO_3$ mg/l	<.01						
Alkalinity as $CaCO_3$ mg/l	388.00						
Ammonia as NA_3-N mg/l	<.01						
Arsenic as As mg/l	.002						
Barium as Ba mg/l	.195						
Bicarbonate as HCO_3 mg/l	470.92						
Boron as B mg/l	.070						
Cadmium as Cd mg/l	<.001						
Calcium as Ca mg/l	63.20						
Carbon Dioxide as CO_2 mg/l							
Carbonate as CO_3 mg/l	<.01						
Chloride as Cl mg/l	30.00						
Chromium as Cr (Hex) mg/l	<.001						
Chromium as Cr (Tot) mg/l	.020						
Copper as Cu mg/l	.010						

SOUTH LEASE COAL PROJECT
WATER RESOURCES - BASELINE DATA

Location:

Map No.:	3						
Fluoride as F mg/l	.17						
Hardness as $CaCO_3$ mg/l	282						
Hydroxide as OH mg/l	<.01						
Iron as Fe (Dissolved) mg/l	.036						
Iron as Fe (Total) mg/l	.040						
Lead as Pb mg/l	<.001						
Magnesium as Mg mg/l	29.76						
Manganese as Mn mg/l	.010						
Mercury as Hg mg/l	<.0002						
Nickel as Ni mg/l	<.001						
Nitrate as NO_3-N mg.k	<.01						
Nitrite as NO_2-N mg/l	<.01						
Phosphate PO_4-P Ortho mg/l	<.001						
Potassium as K mg/l	8.50						
Selenium as Se mg/l	<.001						
Silica as SiO_2 (Dissolved) mg/l	25.00						
Silver as Ag mg/l	<.001						
Sodium as Na mg/l	81.00						
Sulfate as SO_4 mg/l	40.5						
Zinc as Zn mg/l	.010						
Oil and Grease	<.01						

Note:

Alluvium = AL
Colton Formation = C
North Horn-Flagstaff Formation = NHF

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location: T.16 S., R.14E., SEC. 12, SWNE

Map No.: 7	7						
Data Parameters							
Elevation	7440						
Geologic Unit	C						
Water Use LIVESTOCK							
Date	9/9/81						
Data Source: KSC FIELD DATA	FORD						
Discharge in gal/min	1						
Temp. °C, °F	14 57						
Turbidity NTV	.52						
Conductivity umhos/cm	900						
pH Units	8.00						
Total Dissolved Solids mg/l	592						
Total Suspended Solids mg/l	6.0						
Acidity as $CaCO_3$ mg/l	20.90						
Alkalinity as $CaCO_3$ mg/l	410						
Ammonia as NA_3-N mg/l	<.01						
Arsenic as As mg/l	.002						
Barium as Ba mg/l	.330						
Bicarbonate as HCO_3 mg/l	500.2						
Boron as B mg/l	.040						
Cadmium as Cd mg/l	<.001						
Calcium as Ca mg/l	137.60						
Carbon Dioxide as CO_2 mg/l							
Carbonate as CO_3 mg/l	<.01						
Chloride as Cl mg/l	28.00						
Chromium as Cr (Hex) mg/l	<.001						
Chromium as Cr (Tot) mg/l	<.001						
Copper as Cu mg/l	.010						

SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location:

Map No.:	7						
Fluoride as F mg/l	.13						
Hardness as $CaCO_3$ mg/l	422						
Hydroxide as OH mg/l	<.01						
Iron as Fe (Dissolved) mg/l	.025						
Iron as Fe (Total) mg/l	.065						
Lead as Pb mg/l	<.001						
Magnesium as Mg mg/l	18.72						
Manganese as Mn mg/l	.050						
Mercury as Hg mg/l	<.0002						
Nickel as Ni mg/l	<.001						
Nitrate as NO_3-N mg.k	<.01						
Nitrite as NO_2-N mg/l	<.01						
Phosphate PO_4-P Ortho mg/l	.005						
Potassium as K mg/l	12.50						
Selenium as Se mg/l	.001						
Silica as SiO_2 (Dissolved) mg/l	80.0						
Silver as Ag mg/l	<.001						
Sodium as Na mg/l	51.50						
Sulfate as SO_4 mg/l	91.5						
Zinc as Zn mg/l	.005						
Oil and Grease	<.01						

Note:
Alluvium = AL
Colton Formation = C
North Horn-Flagstaff Formation = NHF

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location: T. 16 S., R. 14 E., SEC 12, SESE

Map No.: 8	8						
Data Parameters							
Elevation	7,375						
Geologic Unit	C						
Water Use LIVESTOCK							
Date	8/04/81						
Data Source: KSC FIELD DATA	FORD						
Discharge in gal/min	< 1						
Temp. °C, °F							
Turbidity NTV	.30						
Conductivity umhos/cm	850						
pH Units	8.00						
Total Dissolved Solids mg/l	558						
Total Suspended Solids mg/l	4.8						
Acidity as $CaCO_3$ mg/l	<.01						
Alkalinity as $CaCO_3$ mg/l	398.00						
Ammonia as NA_3-N mg/l	<.01						
Arsenic as As mg/l	.002						
Barium as Ba mg/l	.080						
Bicarbonate as HCO_3 mg/l	470.92						
Boron as B mg/l	.030						
Cadmium as Cd mg/l	<.001						
Calcium as Ca mg/l	60.00						
Carbon Dioxide as CO_2 mg/l							
Carbonate as CO_3 mg/l	7.20						
Chloride as Cl mg/l	16.00						
Chromium as Cr (Hex) mg/l	<.001						
Chromium as Cr (Tot) mg/l	<.001						
Copper as Cu mg/l	<.001						

SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location:

Map No.: 8							
Fluoride as F mg/l	.17						
Hardness as $CaCO_3$ mg/l	384						
Hydroxide as OH mg/l	<.01						
Iron as Fe (Dissolved) mg/l	.060						
Iron as Fe (Total) mg/l	.200						
Lead as Pb mg/l	<.001						
Magnesium as Mg mg/l	56.16						
Manganese as Mn mg/l	.220						
Mercury as Hg mg/l	<.00020						
Nickel as Ni mg/l	<.001						
Nitrate as NO_3-N mg.k	<.01						
Nitrite as NO_2-N mg/l	.17						
Phosphate PO_4-P Ortho mg/l	.030						
Potassium as K mg/l	.31						
Selenium as Se mg/l	<.001						
Silica as SiO_2 (Dissolved) mg/l	23.00						
Silver as Ag mg/l	<.001						
Sodium as Na mg/l	70.10						
Sulfate as SO_4 mg/l	103						
Zinc as Zn mg/l	.010						
Oil and Grease	<.01						

Note:
Alluvium = AL
Colton Formation = C
North Horn-Flagstaff Formation = NHF

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location: T. 16S., R. 14E, SEC. 12, SWSE

Map No.: 9	9	9					
Data Parameters							
Elevation	7,350						
Geologic Unit	AL, C	AL, C					
Water Use LIVESTOCK							
Date	1/14/81	8/24/81					
Data Source: KSC FIELD DATA	FORD						
Discharge in gal/min	1.5	NONE					
Temp. °C, °F							
Turbidity NTV	.76						
Conductivity umhos/cm	740						
pH Units	7.80						
Total Dissolved Solids mg/l	488						
Total Suspended Solids mg/l	26.0						
Acidity as $CaCO_3$ mg/l	<.1						
Alkalinity as $CaCO_3$ mg/l	384.00						
Ammonia as NA_3-N mg/l	<.01						
Arsenic as As mg/l	<.001						
Barium as Ba mg/l	0.95						
Bicarbonate as HCO_3 mg/l	463.60						
Boron as B mg/l	.007						
Cadmium as Cd mg/l	<.001						
Calcium as Ca mg/l	52.00						
Carbon Dioxide as CO_2 mg/l	<.01						
Carbonate as CO_3 mg/l	2.40						
Chloride as Cl mg/l	10.70						
Chromium as Cr (Hex) mg/l	<.001						
Chromium as Cr (Tot) mg/l	<.001						
Copper as Cu mg/l	<.001						

SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location:

Map No.: No. 9							
Fluoride as F mg/l	.18						
Hardness as $CaCO_3$ mg/l	310						
Hydroxide as OH mg/l	<.01						
Iron as Fe (Dissolved) mg/l	.065						
Iron as Fe (Total) mg/l	.220						
Lead as Pb mg/l	<.001						
Magnesium as Mg mg/l	43.20						
Manganese as Mn mg/l	.011						
Mercury as Hg mg/l	<.00020						
Nickel as Ni mg/l	<.001						
Nitrate as NO_3-N mg.k	.16						
Nitrite as NO_2-N mg/l	<.01						
Phosphate PO_4-P Ortho mg/l	.020						
Potassium as K mg/l	20.50						
Selenium as Se mg/l	<.001						
Silica as SiO_2 (Dissolved) mg/l	18.50						
Silver as Ag mg/l	<.001						
Sodium as Na mg/l	61.00						
Sulfate as SO_4 mg/l	73.0						
Zinc as Zn mg/l	.007						
Oil and Grease	2.30						

Note:

Alluvium = AL
Colton Formation = C
North Horn-Flagstaff Formation = NHF

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location: T. 16 S., R. 15 E., SEC. 18, SESW

Map No.: 10	10	10					
Data Parameters							
Elevation	7,275	7,275					
Geologic Unit	AL, C	C					
Water Use LIVESTOCK							
Date	1/14/81	9/[illegible]/81					
Data Source: KSC FIELD DATA	FORD	FORD					
Discharge in gal/min	0.8	1					
Temp. °C, °F							
Turbidity NTV	.66	.24					
Conductivity umhos/cm	900	880					
pH Units	7.60	8.10					
Total Dissolved Solids mg/l	594	590					
Total Suspended Solids mg/l	13.0	1.0					
Acidity as $CaCO_3$ mg/l	<.1	<.01					
Alkalinity as $CaCO_3$ mg/l	396.0	340.00					
Ammonia as NA_3-N mg/l	<.01	<.01					
Arsenic as As mg/l	<.001	<.001					
Barium as Ba mg/l	.188	.044					
Bicarbonate as HCO_3 mg/l	483.12	414.80					
Boron as B mg/l	.012	.015					
Cadmium as Cd mg/l	<.001	<.001					
Calcium as Ca mg/l	69.60	70.40					
Carbon Dioxide as CO_2 mg/l	<.01						
Carbonate as CO_3 mg/l	<.01	<.01					
Chloride as Cl mg/l	11.70	11.90					
Chromium as Cr (Hex) mg/l	<.001	<.001					
Chromium as Cr (Tot) mg/l	<.001	<.001					
Copper as Cu mg/l	.010	.003					

SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location:

Map No.: No. 10							
Fluoride as F mg/l	.17	.15					
Hardness as $CaCO_3$ mg/l	414	410					
Hydroxide as OH mg/l	<.01	<.01					
Iron as Fe (Dissolved) mg/l	.077	.116					
Iron as Fe (Total) mg/l	.185	.200					
Lead as Pb mg/l	<.001	<.001					
Magnesium as Mg mg/l	57.60	56.16					
Manganese as Mn mg/l	.012	.011					
Mercury as Hg mg/l	<.00020	<.00020					
Nickel as Ni mg/l	<.001	<.001					
Nitrate as NO_3-N mg.k	.12	.10					
Nitrite as NO_2-N mg/l	<.01	<.01					
Phosphate PO_4-P Ortho mg/l	.020	.140					
Potassium as K mg/l	12.80	10.20					
Selenium as Se mg/l	<.001	<.001					
Silica as SiO_2 (Dissolved) mg/l	15.00	18.50					
Silver as Ag mg/l	<.001	<.001					
Sodium as Na mg/l	40.00	36.90					
Sulfate as SO_4 mg/l	148	138					
Zinc as Zn mg/l	.002	.005					
Oil and Grease	1.10	2.20					

Note:
Alluvium = AL
Colton Formation = C
North Horn-Flagstaff Formation = NHF

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location: T. 16 S., R. 14 E, SEC. 25, NWSE

Map No.: 11	11	11	11				
Data Parameters							
Elevation(FT) TOPO	6,660	6,660	6,660				
Geologic Unit	AL, NHF	AL, NHF	AL, NHF				
Water Use LIVESTOCK							
Date	1/14/81	4/6/81	9/03/81				
Data Source: KSC BASIC DATA	FORD	FORD					
Discharge in gal/min	<1	<1	SEEP				
Temp. °C, °F							
Turbidity NTV	.62	.31					
Conductivity umhos/cm	1,870	2,000					
pH Units	8.00	8.30					
Total Dissolved Solids mg/l	1,220	1,300					
Total Suspended Solids mg/l	11.0	19.0					
Acidity as $CaCO_3$ mg/l	<.1	<.01					
Alkalinity as $CaCO_3$ mg/l	530.00	476.00					
Ammonia as NA_3-N mg/l	<.01	<.01					
Arsenic as As mg/l	<.001	.001					
Barium as Ba mg/l	.250	.020					
Bicarbonate as HCO_3 mg/l	529.48	570.96					
Boron as B mg/l	.005	.200					
Cadmium as Cd mg/l	<.001	<.001					
Calcium as Ca mg/l	40.00	41.60					
Carbon Dioxide as CO_2 mg/l	<.01	<.01					
Carbonate as CO_3 mg/l	57.60	4.80					
Chloride as Cl mg/l	76.20	80.00					
Chromium as Cr (Hex) mg/l	<.001	<.001					
Chromium as Cr (Tot) mg/l	<.001	.002					
Copper as Cu mg/l	<.001	.010					

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location:

Map No.:	11	11					
Fluoride as F mg/l	.29	.25					
Hardness as $CaCO_3$ mg/l	480	440					
Hydroxide as OH mg/l	<.01	<.01					
Iron as Fe (Dissolved) mg/l	.085	.010					
Iron as Fe (Total) mg/l	.215	.050					
Lead as Pb mg/l	.005	.002					
Magnesium as Mg mg/l	91.20	80.64					
Manganese as Mn mg/l	.006	.010					
Mercury as Hg mg/l	<.00020	<.00020					
Nickel as Ni mg/l	<.001	<.001					
Nitrate as NO_3-N mg.k	.24	.21					
Nitrite as NO_2-N mg/l	<.01	<.01					
Phosphate PO_4-P Ortho mg/l	<.010	.110					
Potassium as K mg/l	12.40	.95					
Selenium as Se mg/l	<.001	.010					
Silica as SiO_2 (Dissolved) mg/l	11.50	9.45					
Silver as Ag mg/l	<.001	.005					
Sodium as Na mg/l	270.00	315.00					
Sulfate as SO_4 mg/l	435	500					
Zinc as Zn mg/l	.005	.005					
Oil and Grease	.50	1.20					

Note:
Alluvium = AL
Colton Formation = C
North Horn-Flagstaff Formation = NHF

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location: T.16S., R.15E., SEC. 31 SENE

Map No.: 13	13						
Data Parameters							
Elevation (FT) TOPO	6855						
Geologic Unit	NHF						
Water Use LIVESTOCK							
Date	9/13/81						
Data Source: KSC BASIC DATA	FORD						
Discharge in gal/min	1						
Temp. °C, °F							
Turbidity NTV	.38						
Conductivity umhos/cm	1,280						
pH Units	8.40						
Total Dissolved Solids mg/l	835						
Total Suspended Solids mg/l	1.0						
Acidity as $CaCO_3$ mg/l	<.01						
Alkalinity as $CaCO_3$ mg/l	470.0						
Ammonia as NA_3-N mg/l	<.01						
Arsenic as As mg/l	.002						
Barium as Ba mg/l	.065						
Bicarbonate as HCO_3 mg/l	500.10						
Boron as B mg/l	.010						
Cadmium as Cd mg/l	<.001						
Calcium as Ca mg/l	31.20						
Carbon Dioxide as CO_2 mg/l							
Carbonate as CO_3 mg/l	36.0						
Chloride as Cl mg/l	36.0						
Chromium as Cr (Hex) mg/l	<.001						
Chromium as Cr (Tot) mg/l	<.001						
Copper as Cu mg/l	<.001						

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location:

Map No.:	13						
Fluoride as F mg/l	.22						
Hardness as $CaCO_3$ mg/l	510						
Hydroxide as OH mg/l	<.01						
Iron as Fe (Dissolved) mg/l	.145						
Iron as Fe (Total) mg/l	.229						
Lead as Pb mg/l	<.001						
Magnesium as Mg mg/l	103.68						
Manganese as Mn mg/l	.012						
Mercury as Hg mg/l	<.0002						
Nickel as Ni mg/l	<.001						
Nitrate as NO_3-N mg.k	<.01						
Nitrite as NO_2-N mg/l	<.01						
Phosphate PO_4-P Ortho mg/l	.225						
Potassium as K mg/l	12.85						
Selenium as Se mg/l	.002						
Silica as SiO_2 (Dissolved) mg/l	21.0						
Silver as Ag mg/l	<.001						
Sodium as Na mg/l	125.0						
Sulfate as SO_4 mg/l	270						
Zinc as Zn mg/l	.114						
Oil and Grease	1.0						

Note:
Alluvium = AL
Colton Formation = C
North Horn-Flagstaff Formation = NHF

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location: T. 16 S., T. 15 E., SEC. 31 SWSE

Map No.: 14-WILLIAMS DRAW	14	14	14	14	14	14
Data Parameters		50 FT DOWN-STREAM				
Elevation (FT) TOPO	6,650	6,650	6,650	6,650	6,650	6,650
Geologic Unit	AL, NHF	AL, NHF	AL, NHF	AL, NHF	AL, NHF	AL, NHF
Water Use LIVESTOCK						
Date	10/3/80	10/28/80	1/14/81	4/16/81	9/15/81	12/8/81
Data Source: KSC BASIC DATA	FORD	FORD	FORD	FORD	FORD	FORD
Discharge in gal/min	<1	<1	<1	<1	<1	<1
Temp. °C, °F						
Turbidity NTV			.56	.20	.28	.24
Conductivity umhos/cm	1,800	1,700	2,000	2,140	1,850	2,250
pH Units	8.00	8.20	7.60	8.20	8.30	8.00
Total Dissolved Solids mg/l	1,260	1,190	1,320	1,390	1,200	1,488
Total Suspended Solids mg/l	4.0	39.0	13.0	10.0	1.0	26.0
Acidity as $CaCO_3$ mg/l	<.1	<.1	<.1	<.01	<.01	12.0
Alkalinity as $CaCO_3$ mg/l	446.00	488.00	474.00	416.60	414.0	418.60
Ammonia as NA_3-N mg/l			<.01	<.01	<.01	.70
Arsenic as As mg/l	<.001	<.001	<.001	.001	<.001	<.001
Barium as Ba mg/l			.310	.015	.015	.015
Bicarbonate as HCO_3 mg/l			573.40	488.00	500.2	500.20
Boron as B mg/l			.008	.170	.170	.165
Cadmium as Cd mg/l			<.001	<.001	<.001	<.001
Calcium as Ca mg/l			68.00	67.20	56.8	68.50
Carbon Dioxide as CO_2 mg/l			<.01	<.01		
Carbonate as CO_3 mg/l			2.40	9.60	2.40	48.0
Chloride as Cl mg/l	37.50	34.60	53.60	160.00	50.0	51.76
Chromium as Cr (Hex) mg/l			<.001	<.001	<.001	<.001
Chromium as Cr (Tot) mg/l			<.001	.003	<.001	.002
Copper as Cu mg/l			.005	.010	.008	.010

SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location:

Map No.: 14	14	14	14	14	14	14
Fluoride as F mg/l			.30	.30	.32	.29
Hardness as $CaCO_3$ mg/l			592	600	564	650
Hydroxide as OH mg/l			<.01	<.01	<.01	<.01
Iron as Fe (Dissolved) mg/l	.045	.088	.150	.010	.085	.050
Iron as Fe (Total) mg/l	.145	.155	.228	.070	.150	.100
Lead as Pb mg/l	<.001	<.001	<.001	<.001	.018	<.001
Magnesium as Mg mg/l			101.28	103.68	101.28	103.00
Manganese as Mn mg/l	.016	.020	.007	.010	.006	.019
Mercury as Hg mg/l			<.00070	<.00020	<.0002	<.00050
Nickel as Ni mg/l			.015	<.001	<.001	<.001
Nitrate as NO_3-N mg.k	.10	.08	.11	.16	.06	.17
Nitrite as NO_2-N mg/l			<.01	<.01	<.01	.03
Phosphate PO_4-P Ortho mg/l	.070	.060	<.010	.070		.070
Potassium as K mg/l	1.20	2.50	10.80	1.10	8.60	12.60
Selenium as Se mg/l	<.001	<.001	<.001	.005	.007	.005
Silica as SiO_2 (Dissolved) mg/l			14.50	14.00	17.50	15.00
Silver as Ag mg/l	.003	<.001	<.001	.004	<.001	<.001
Sodium as Na mg/l			240.00	280.00	208.0	298.0
Sulfate as SO_4 mg/l	600	510	570	530	525	660
Zinc as Zn mg/l			.010	.005	.020	.045
Oil and Grease	3.40	2.40	.30	.20	<.01	<1.00

Note:
Alluvium = AL
Colton Formation = C
North Horn-Flagstaff Formation = NHF

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location: T.16 S., R.15E., SEC 19, T.16 S., R.14E., SEC 24

Map No.: 15, 16, 5 [illegible]	15 SEC 24	16 SEC 19	16 SEC 19	27 SEC 19	28 SEC 19		
Data Parameters		UPSTREAM SAMPLE	PIPE SAMPLE	SPRING	SPRING		
Elevation (FT)	7,275	7,025	7,065	7,000	7,000		
Geologic Unit	C	AL, NHF	AL, NHF	AL, NHF	AL, NHF		
Water Use LIVESTOCK							
Date	9/11/81	9/11/81	9/11/81	9/11/81	12/8/81		
Data Source: KSC FIELD DATA	FORD	FORD	FORD				
Discharge in gal/min	<1	<1	<1	DRY	DRY		
Temp. °C, °F							
Turbidity NTV	.52	1.0	.54				
Conductivity umhos/cm	940	860	920				
pH Units	8.70	8.30	8.30				
Total Dissolved Solids mg/l	610	550	599				
Total Suspended Solids mg/l	22.0	1.0	10.0				
Acidity as $CaCO_3$ mg/l	<.01	<.01	<.01				
Alkalinity as $CaCO_3$ mg/l	410.00	390.0	400.0				
Ammonia as NA_3-N mg/l	<.01	<.01	<.01				
Arsenic as As mg/l	.002	.002	.002				
Barium as Ba mg/l	.055	.070	.055				
Bicarbonate as HCO_3 mg/l	402.60	451.40	473.36				
Boron as B mg/l	.040	.070	.080				
Cadmium as Cd mg/l	<.001	<.001	<.001				
Calcium as Ca mg/l	40.0	21.60	34.40				
Carbon Dioxide as CO_2 mg/l							
Carbonate as CO_3 mg/l	48.0	12.0	7.20				
Chloride as Cl mg/l	24.0	24.0	26.0				
Chromium as Cr (Hex) mg/l	<.001	<.001	<.001				
Chromium as Cr (Tot) mg/l	<.001	<.001	<.001				
Copper as Cu mg/l	<.001	<.001	.008				

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location:

Map No.:	15	16	16				
Fluoride as F mg/l	.18	.21	.23				
Hardness as $CaCO_3$ mg/l	340	314	320				
Hydroxide as OH mg/l	<.01	<.01	<.01				
Iron as Fe (Dissolved) mg/l	.098	.098	.098				
Iron as Fe (Total) mg/l	.165	.310	.144				
Lead as Pb mg/l	.001	.002	<.001				
Magnesium as Mg mg/l	57.60	62.40	56.16				
Manganese as Mn mg/l	.014	.025	.003				
Mercury as Hg mg/l	<.0002	<.0002	<.0002				
Nickel as Ni mg/l	<.001	<.001	<.001				
Nitrate as NO_3-N mg.k	.06	.03	<.01				
Nitrite as NO_2-N mg/l	<.01	<.01	<.01				
Phosphate PO_4-P Ortho mg/l	.012	.115					
Potassium as K mg/l	4.50	5.90	3.60				
Selenium as Se mg/l	<.001	<.001	.002				
Silica as SiO_2 (Dissolved) mg/l	20.0	20.50	20.50				
Silver as Ag mg/l	<.001	<.001	<.001				
Sodium as Na mg/l	105.0	96.80	110.0				
Sulfate as SO_4 mg/l	127.0	108	124				
Zinc as Zn mg/l	.006	.036					
Oil and Grease	1.80	<.01	<.01				

Note:

Alluvium = AL
Colton Formation = C
North Horn-Flagstaff Formation = NHF

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location: T. 16 S., R15E, SEC 19, NWSW

Map No.: 16	16 SEC 19	16 SEC 19					
Data Parameters	DOWN STREAM FROM PIPE	100 FEET FROM PIPE					
Elevation	7,065	7,065					
Geologic Unit	AL, NHF	AL, NHF					
Water Use LIVESTOCK							
Date	1/14/81	12/8/81					
Data Source: KSC BASIC DATA	FORD	FORD					
Discharge in gal/min	<1	<1					
Temp. °C, °F							
Turbidity NTV	.54	.65					
Conductivity umhos/cm	920	810					
pH Units	7.80	8.24					
Total Dissolved Solids mg/l	610	523					
Total Suspended Solids mg/l	7.0	17.0					
Acidity as $CaCO_3$ mg/l	<.1	<.01					
Alkalinity as $CaCO_3$ mg/l	416.00	353.30					
Ammonia as NA_3-N mg/l	<.01	1.46					
Arsenic as As mg/l	<.001	<.001					
Barium as Ba mg/l	.220	.055					
Bicarbonate as HCO_3 mg/l	503.14	406.60					
Boron as B mg/l	.006	.040					
Cadmium as Cd mg/l	<.001	<.001					
Calcium as Ca mg/l	51.00	45.50					
Carbon Dioxide as CO_2 mg/l	<.01						
Carbonate as CO_3 mg/l	2.40	12.00					
Chloride as Cl mg/l	18.40	14.45					
Chromium as Cr (Hex) mg/l	<.001	<.001					
Chromium as Cr (Tot) mg/l	<.001	<.001					
Copper as Cu mg/l	.008	<.001					

SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location:

Map No.:	16						
Fluoride as F mg/l	.16	.29					
Hardness as $CaCO_3$ mg/l	296	330					
Hydroxide as OH mg/l	<.01	<.01					
Iron as Fe (Dissolved) mg/l	.095	.010					
Iron as Fe (Total) mg/l	.117	.020					
Lead as Pb mg/l	<.001	<.001					
Magnesium as Mg mg/l	44.64	47.50					
Manganese as Mn mg/l	.015	.010					
Mercury as Hg mg/l	<.00020	<.00020					
Nickel as Ni mg/l	<.001	<.001					
Nitrate as NO_3-N mg.k	<.01	.06					
Nitrite as NO_2-N mg/l	<.01	.02					
Phosphate PO_4-P Ortho mg/l	<.010	.040					
Potassium as K mg/l	30.10	6.50					
Selenium as Se mg/l	<.001	.002					
Silica as SiO_2 (Dissolved) mg/l	15.00	17.10					
Silver as Ag mg/l	<.001	<.001					
Sodium as Na mg/l	100.00	80.00					
Sulfate as SO_4 mg/l	112	111					
Zinc as Zn mg/l	.016	—					
Oil and Grease	3.60	3.40					

Note:

Alluvium = AL
Tolton Formation = C
North Horn-Flagstaff Formation = NHF

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location: T. 14 S., R. 15E, SEC. 30, NWNE

Map No.: 18	18						
Data Parameters							
Elevation (FT) 7500	7135						
Geologic Unit	C						
Water Use LIVESTOCK							
Date	9/12/81						
Data Source: KSC BASIC DATA	FORD						
Discharge in gal/min	<1						
Temp. °C, °F	13 55						
Turbidity NTV	.52						
Conductivity umhos/cm	990						
pH Units	8.20						
Total Dissolved Solids mg/l	650						
Total Suspended Solids mg/l	1.0						
Acidity as $CaCO_3$ mg/l	<.01						
Alkalinity as $CaCO_3$ mg/l	420.0						
Ammonia as NA_3-N mg/l	<.01						
Arsenic as As mg/l	.002						
Barium as Ba mg/l	.075						
Bicarbonate as HCO_3 mg/l	497.6						
Boron as B mg/l	.070						
Cadmium as Cd mg/l	<.001						
Calcium as Ca mg/l	41.60						
Carbon Dioxide as CO_2 mg/l							
Carbonate as CO_3 mg/l	7.20						
Chloride as Cl mg/l	20.0						
Chromium as Cr (Hex) mg/l	<.001						
Chromium as Cr (Tot) mg/l	<.001						
Copper as Cu mg/l	.002						

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location:

Map No.: 18	18						
Fluoride as F mg/l	.20						
Hardness as $CaCO_3$ mg/l	380						
Hydroxide as OH mg/l	<.01						
Iron as Fe (Dissolved) mg/l	.065						
Iron as Fe (Total) mg/l	.115						
Lead as Pb mg/l	<.001						
Magnesium as Mg mg/l	66.24						
Manganese as Mn mg/l	.010						
Mercury as Hg mg/l	<.0002						
Nickel as Ni mg/l	<.001						
Nitrate as NO_3-N mg.k	.04						
Nitrite as NO_2-N mg/l	<.01						
Phosphate PO_4-P Ortho mg/l	.015						
Potassium as K mg/l	5.10						
Selenium as Se mg/l	<.001						
Silica as SiO_2 (Dissolved) mg/l	17.0						
Silver as Ag mg/l	<.001						
Sodium as Na mg/l	96.0						
Sulfate as SO_4 mg/l	147						
Zinc as Zn mg/l	.005						
Oil and Grease	<.01						

Note:
Alluvium = AL
Colton Formation = C
North Horn-Flagstaff Formation = NHF

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location: T. 17 S., R. 15E, SEC. 6, SWSW

Map No.: A-31	A-31	A-31	A-31				
Data Parameters							
Elevation (FT) TOPO	6,354	6,354	6,354				
Geologic Unit	AL	AL	AL				
Water Use							
Date	10/28/80	1/14/81	9/3/81				
Data Source: KSC BASIC DATA	FORD	FORD	FORD				
Discharge in gal/min							
Temp. °C, °F							
Turbidity NTV		100.00	9.50				
Conductivity umhos/cm	1,785	2,000	2,000				
pH Units	7.20	7.00	7.20				
Total Dissolved Solids mg/l	1,250	1,350	1,475				
Total Suspended Solids mg/l	906	948	13,000				
Acidity as $CaCO_3$ mg/l	60.00	19.0	<.01				
Alkalinity as $CaCO_3$ mg/l	580.00	508.00	484.00				
Ammonia as NA_3-N mg/l		.45	.75				
Arsenic as As mg/l	<.001	<.001	.008				
Barium as Ba mg/l		1.88	.045				
Bicarbonate as HCO_3 mg/l		619.76	590.48				
Boron as B mg/l		.155	.012				
Cadmium as Cd mg/l		<.001	.002				
Calcium as Ca mg/l		152.00	172.00				
Carbon Dioxide as CO_2 mg/l		<.01					
Carbonate as CO_3 mg/l		<.01	<.01				
Chloride as Cl mg/l	17.80	39.50	66.50				
Chromium as Cr (Hex) mg/l		.008	<.001				
Chromium as Cr (Tot) mg/l		<.001	.084				
Copper as Cu mg/l		.002	<.001				

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location:

Map No.: A-31	A-31	A-31	A-31				
Fluoride as F mg/l		.70	.59				
Hardness as $CaCO_3$ mg/l		860	970				
Hydroxide as OH mg/l		<.01	<.01				
Iron as Fe (Dissolved) mg/l	.096	.110	.110				
Iron as Fe (Total) mg/l	.126	.410	.188				
Lead as Pb mg/l	<.001	.003	.045				
Magnesium as Mg mg/l		115.20	129.60				
Manganese as Mn mg/l	.030	.010	.024				
Mercury as Hg mg/l		<.00020	<.00020				
Nickel as Ni mg/l		<.001	.062				
Nitrate as NO_3-N mg.k	<.01	<.01	.34				
Nitrite as NO_2-N mg/l		<.01	<.01				
Phosphate PO_4-P Ortho mg/l	.040	<.010	<.010				
Potassium as K mg/l	12.50	21.40	25.85				
Selenium as Se mg/l	<.001	<.001	<.001				
Silica as SiO_2 (Dissolved) mg/l		8.25	9.00				
Silver as Ag mg/l	<.001	<.001	<.001				
Sodium as Na mg/l		80.00	235.00				
Sulfate as SO_4 mg/l	375	480.00	915				
Zinc as Zn mg/l		.004	.035				
Oil and Grease	73.40	154.00	6.20				
NOTE: SAMPLES HAVE BEEN CONTAMINATED BY DRILLING FLUID (MUD). STRONG ODOR OF H_2S IN SAMPLE OF 9/3/81							
Note:							
Alluvium = AL							
Colton Formation = C							
North Horn-Flagstaff Formation = NHF							

KESC 737

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location: T. 16 S., R. 14 E. SEC. 28, SW¼ SE

Map No.: POND	A						
Data Parameters							
Elevation	5240						
Geologic Unit: AL-MANCOS SH							
Water Use LIVESTOCK							
Date	4/6/81						
Data Source: KSC BASIC DATA	FORD						
Discharge in gal/min							
Temp. °C, °F							
Turbidity NTV	.48						
Conductivity umhos/cm	16,500						
pH Units	8.90						
Total Dissolved Solids mg/l	10,730						
Total Suspended Solids mg/l	68.00						
Acidity as $CaCO_3$ mg/l	<.01						
Alkalinity as $CaCO_3$ mg/l	108.00						
Ammonia as NA_3-N mg/l	.15						
Arsenic as As mg/l	.014						
Barium as Ba mg/l	.025						
Bicarbonate as HCO_3 mg/l	82.96						
Boron as B mg/l	.070						
Cadmium as Cd mg/l	<.001						
Calcium as Ca mg/l	388.00						
Carbon Dioxide as CO_2 mg/l	<.01						
Carbonate as CO_3 mg/l	24.00						
Chloride as Cl mg/l	160.00						
Chromium as Cr (Hex) mg/l	.003						
Chromium as Cr (Tot) mg/l	.026						
Copper as Cu mg/l	.030						

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location:

Map No.:	A						
Fluoride as F mg/l	.39						
Hardness as $CaCO_3$ mg/l	2,030						
Hydroxide as OH mg/l	<.01						
Iron as Fe (Dissolved) mg/l	.110						
Iron as Fe (Total) mg/l	.170						
Lead as Pb mg/l	.002						
Magnesium as Mg mg/l	254.40						
Manganese as Mn mg/l	.030						
Mercury as Hg mg/l	<.00020						
Nickel as Ni mg/l	<.001						
Nitrate as NO_3-N mg.k	<.01						
Nitrite as NO_2-N mg/l	<.01						
Phosphate PO_4-P Ortho mg/l	.100						
Potassium as K mg/l	20.50						
Selenium as Se mg/l	.030						
Silica as SiO_2 (Dissolved) mg/l	.95						
Silver as Ag mg/l	.028						
Sodium as Na mg/l	2,650.00						
Sulfate as SO_4 mg/l	7,200						
Zinc as Zn mg/l	.010						
Oil and Grease	3.40						

Note:
Alluvium = AL
Colton Formation = C
North Horn-Flagstaff Formation = NHF

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location: T. 16 S., T. 14 E., SEC. 08, SWSE

Map No.: AA WEICH	AA						
Data Parameters							
Elevation	5,245						
Geologic Unit MANCOS SHALE							
Water Use							
Date	4/6/81						
Data Source: KSC BASIC DATA	FOED						
Discharge in gal/min	<1						
Temp. °C, °F							
Turbidity NTV	.71						
Conductivity umhos/cm	65,000						
pH Units	8.50						
Total Dissolved Solids mg/l	48,150						
Total Suspended Solids mg/l	164						
Acidity as $CaCO_3$ mg/l	<.01						
Alkalinity as $CaCO_3$ mg/l	4840.00						
Ammonia as NA_3-N mg/l	6.30						
Arsenic as As mg/l	.012						
Barium as Ba mg/l	.015						
Bicarbonate as HCO_3 mg/l	473.70						
Boron as B mg/l	.250						
Cadmium as Cd mg/l	<.001						
Calcium as Ca mg/l	450.00						
Carbon Dioxide as CO_2 mg/l	<.01						
Carbonate as CO_3 mg/l	57.60						
Chloride as Cl mg/l	1,953.00						
Chromium as Cr (Hex) mg/l	.008						
Chromium as Cr (Tot) mg/l	.006						
Copper as Cu mg/l	.130						

KAISER STEEL CORPORATION
SOUTH LEASE COAL PROPERTY
WATER RESOURCES - BASELINE DATA

Location:

Map No.:	AA						
Fluoride as F mg/l	.35						
Hardness as $CaCO_3$ mg/l	12,750						
Hydroxide as OH mg/l	<.01						
Iron as Fe (Dissolved) mg/l	.210						
Iron as Fe (Total) mg/l	.280						
Lead as Pb mg/l	.005						
Magnesium as Mg mg/l	3,780.00						
Manganese as Mn mg/l	.030						
Mercury as Hg mg/l	<.0020						
Nickel as Ni mg/l	<.001						
Nitrate as NO_3-N mg.k	8.30						
Nitrite as NO_2-N mg/l	.08						
Phosphate PO_4-P Ortho mg/l	.160						
Potassium as K mg/l	65.00						
Selenium as Se mg/l	.110						
Silica as SiO_2 (Dissolved) mg/l	1.25						
Silver as Ag mg/l	.132						
Sodium as Na mg/l	3,900.00						
Sulfate as SO_4 mg/l	27,800						
Zinc as Zn mg/l	.025						
Oil and Grease	14.60						
Note:							
Alluvium = AL							
Colton Formation = C							
North Horn-Flagstaff Formation = NHF							

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KAISER STEEL CORPORATION

SOUTH LEASE COAL PROPERTY

EMERY COUNTY, UTAH

REGIONAL WATER QUALITY

BASELINE DATA

PRICE RIVER AT WOODSIDE, UTAH

SCALE: 1" : 2000'

DATE: OCT., 1981

PLATE VII-4

09314500 PRICE RIVER AT WOODSIDE, UT—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.—December 1946 to September 1949, February 1951 to current year.

PERIOD OF DAILY RECORD.—
SPECIFIC CONDUCTANCE: February 1951 to current year.
WATER TEMPERATURES: February 1951 to September 1959, November 1961 to September 1963, October 1964 to current year.

REMARKS.—Unpublished daily records of specific conductance obtained before water year 1965 were included in the determination of extremes for period of daily record and are available in files of district office.

EXTREMES FOR PERIOD OF DAILY RECORD.—
SPECIFIC CONDUCTANCE: Maximum daily, 8,540 micromhos Dec. 11, 1951; minimum daily, 814 micromhos June 1, 1952.
WATER TEMPERATURES: Maximum, 32.0°C July 10, 11, 1954 and Apr. 7, 1977; minimum, 0.0°C on many days during winter period each year.

EXTREMES FOR CURRENT YEAR.—
SPECIFIC CONDUCTANCE: Maximum daily, 6,090 micromhos Jan. 3; minimum daily, 1,140 micromhos Apr. 27.
WATER TEMPERATURES: Maximum, 30.0°C several days during July and August; minimum, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT											
21...	1050	30	4540	8.3	10.0	8.8	1600	1400	330	200	590
NOV											
08...	1430	20	3500	7.6	5.0	--	1200	990	220	150	410
17...	1115	16	4820	8.7	3.0	12.1	1700	1400	280	250	730
DEC											
07...	1500	11	5220	8.2	.0	--	1800	1600	290	270	760
15...	0830	20	5280	8.5	--	11.8	1900	1900	300	280	760
JAN											
19...	0830	15	4370	8.3	.0	12.0	1700	1300	290	240	560
FEB											
24...	1100	20	5840	8.5	.0	12.0	1400	1100	250	190	480
MAR											
24...	1130	87	4040	8.4	11.0	8.8	1500	1200	240	220	480
APR											
21...	1030	128	1630	8.5	9.0	9.0	600	230	110	79	190
MAY											
26...	1200	110	1760	8.4	14.0	8.5	640	280	120	82	230
JUL											
06...	1330	34	2430	8.3	23.0	8.0	820	570	130	120	310
AUG											
09...	1320	22	2980	8.3	26.0	7.2	950	790	150	140	400
SEP											
28...	1615	18	3350	8.6	18.5	9.6	1000	870	170	150	470

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)
OCT											
21...	6.3	11	280	0	2600	71	1.3	4170	3940	5.67	338
NOV											
08...	5.2	9.7	210	0	1800	56	2.4	--	2750	3.74	153
17...	7.6	11	330	40	2800	98	.6	4510	4370	6.13	195
DEC											
07...	7.7	11	340	0	3000	93	.2	--	4590	6.24	140
15...	7.6	13	40	8	3100	100	1.2	4990	4580	6.79	269
JAN											
19...	5.9	9.8	440	6	2400	84	6.6	4030	3810	5.48	163
FEB											
24...	5.6	8.8	400	14	1900	79	7.9	3410	3130	4.64	184
MAR											
24...	5.4	10	340	12	2100	68	6.4	3500	3300	4.76	822
APR											
21...	3.4	4.0	450	0	640	31	12	1290	1290	1.75	446
MAY											
26...	4.0	5.0	400	16	700	22	12	1400	1380	1.90	416
JUL											
06...	4.7	7.4	300	0	1100	45	3.0	1900	1860	2.58	174
AUG											
09...	5.6	9.3	200	0	1500	60	.5	2530	2360	3.44	150
SEP											
28...	6.3	9.3	200	4	1800	54	.2	2890	2760	3.93	140

09314500 PRICE RIVER AT WOODSIDE, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)
OCT											
21...	.05	.09	1.6	1.7	1.8	15	10	2.20	1.97	.002	.000
NOV											
08...	--	--	--	--	--	--	--	--	--	--	--
17...	.80	.04	.91	.95	1.8	7.9	7.6	11.3	10.3	.310	.000
DEC											
07...	--	--	--	--	--	--	--	--	--	--	--
15...	1.7	.30	.80	1.1	2.8	8.7	8.5	--	--	--	--
JAN											
19...	1.6	.97	.43	1.4	3.0	6.5	6.2	--	--	--	--
FEB											
24...	1.4	1.1	.00	1.0	2.4	15	7.1	--	--	--	--
MAR											
24...	1.1	.18	3.1	3.3	4.4	66	6.6	--	--	--	--
APR											
21...	.76	.01	2.1	2.1	2.9	26	5.1	--	--	--	--
MAY											
26...	.69	.01	1.5	1.5	2.2	17	4.9	6.22	5.12	.150	.000
JUL											
06...	.02	.00	.92	.92	.94	9.9	7.4	5.43	4.65	2.02	.190
AUG											
09...	.01	.02	.59	.61	.62	9.9	6.4	18.6	16.9	1.09	.080
SEP											
28...	.01	.01	.68	.69	.70	8.7	7.9	--	--	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)
OCT										
21...	1050	5	1	10	0	60	20	30	4	18000
JAN										
19...	0830	2	1	1	1	20	20	5	3	920
APR										
21...	1030	--	6	1	1	30	0	44	3	10

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT											
21...	20	100	1	440	20	.0	.0	8	6	120	30
JAN											
19...	10	9	4	90	60	1.0	.0	10	10	30	30
APR											
21...	10	39	14	860	10	.0	.0	4	0	190	80

09314500 PRICE RIVER AT WOODSIDE, UT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4190	5660	4610	4110	3820	2160	2130	1470		2660	3130	3390
2	5320	5610	4610	3930	3830	2200	2490	2860		2330	2930	3180
3	5290	5600	4620	6090	3830	2180	2120	2900		2250	3000	3110
4	4440	4770	4640	4060	3830	2210	1740	2830		2460	2840	3160
5	4900	4770	5760	6030	3830	2470	1850	2770		2570	3090	3190
6	4890	3880	5770	6070	3830	2480	1810	2360		2360	2810	3240
7	3490	3730	5790	3950	3830	4450	1940	2760		2420	2930	3140
8	2590	4740	5770	6060	3830	3720	1750	2690		2560	2690	3250
9	2580	4750	4310	3980	3830	3860	1900	2730		2530	2620	3360
10	2570	4740	4580	4310	3810	3860	1680	3040		2700	2550	3360
11	2750	4810	4320	4340	3840	3300	1570	3210		2720	2870	3810
12	2760	4780	5010	4360	3840	3430	1350	3220		2750	2940	3660
13	2760	4760	5040	4320	3830	2280	1180	2770		2850	3010	3510
14	3630	4820	5000	4350	3800	4590	1590	2600		2870	2980	3510
15	3610	4770	5030	4350	3840	5000	1440	2530		2740	2020	3390
16	3650	4780	5010	4350	3840	5000	1440	2580		2640	2720	3400
17	3630	4720	5000	4340	3830	5200	1480	2510		2380	2800	2880
18	3940	4540	5030	4340	3790	5460	1340	2450		3120	2730	3810
19	3970	4760	4980	4340	3800	5300	1420	2610		2340	2930	3230
20	4840	4900	5970	3780	3840	5140	1630	2350		2780	2680	3430
21	5110	4920	3930	4340	3840	4730	1640	2400		4470	2390	3230
22	4480	4940	3880	4340	3820	3930	1550	2340		2990	2380	2980
23	5390	4950	3950	4340	3480	4120	1510	2600		3010	3380	3050
24	4850	4570	3920	4370	3140	3800	1640	2620		2790	3290	---
25	4830	4580	5960	4340	3480	3590	1630	2610		2840	3490	---
26	4840	4620	3970	4330	3500	4060	1620	2620		2840	3430	---
27	3680	4620	3950	4350	3480	3750	1140	2290		2680	3470	---
28	5510	4560	5960	4340	2200	3420	1290	2340		2730	3520	---
29	5680	4400	3860	4350	---	3360	1320	2270		2890	3830	---
30	5710	4450	3860	4340	---	2910	1360	2620		3050	3880	---
31	5640	---	3860	4340	---	2470	---	---		2990	3430	---
MEAN	4240	4750	4770	4490	3700	3690	1620	2600		2750	2990	---

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	11.0	4.0	1.0	1.0	3.0	14.0	12.0		24.0	26.0	27.0
2	20.0	10.0	5.0	1.0	2.0	4.0	12.0	21.0		23.0	28.0	25.0
3	20.0	10.0	4.0	.0	1.0	3.0	12.0	20.0		16.0	27.0	20.0
4	19.0	11.0	4.0	2.0	1.0	5.0	14.0	22.0		21.0	30.0	25.0
5	18.0	11.0	3.0	1.0	1.0	4.0	13.0	17.0		25.0	28.0	20.0
6	18.5	10.0	4.0	1.0	1.0	3.0	15.0	20.0		21.0	30.0	24.0
7	14.0	11.0	1.5	2.0	1.0	9.0	15.0	21.0		18.0	28.0	18.0
8	14.0	10.0	2.0	1.0	2.0	8.5	13.0	20.0		22.0	20.0	25.0
9	15.0	10.0	2.0	.0	.0	6.0	14.0	23.0		27.0	30.0	21.0
10	14.0	10.0	1.0	1.0	2.0	6.0	15.0	22.0		23.0	29.0	20.0
11	14.0	9.0	2.0	2.0	1.0	7.0	16.0	24.0		23.0	25.0	21.0
12	15.0	10.0	1.5	1.0	1.0	7.0	15.0	21.0		18.0	27.0	20.0
13	15.0	11.0	1.0	1.0	2.0	4.0	13.0	20.0		22.0	21.0	21.0
14	16.0	9.0	1.0	1.0	1.0	9.0	14.0	20.0		30.0	24.0	22.0
15	16.0	8.0	1.0	.0	2.0	3.0	14.0	24.0		23.0	25.0	23.0
16	16.0	8.0	.0	.0	1.0	3.0	11.0	19.0		25.0	22.0	22.0
17	17.0	7.0	1.0	1.0	.0	7.0	10.0	25.0		24.0	21.0	13.0
18	15.0	9.0	.0	2.0	1.0	7.0	15.0	25.0		24.0	28.0	9.0
19	15.0	5.0	.0	1.0	.0	10.0	11.0	24.0		21.0	25.0	20.0
20	16.0	5.0	1.0	3.0	1.0	7.0	9.0	23.0		26.0	17.0	15.0
21	14.0	4.0	.0	1.0	1.0	8.0	10.0	25.0		25.0	25.0	21.0
22	17.0	4.0	1.0	2.0	2.0	10.0	12.0	26.0		20.0	25.0	18.0
23	---	4.0	1.0	1.0	1.0	9.0	10.0	25.0		25.0	25.0	18.0
24	16.0	5.0	.0	.0	2.0	10.0	16.0	26.0		30.0	25.0	---
25	15.0	4.0	.0	1.0	1.0	7.0	15.0	25.0		30.0	25.0	---
26	15.0	4.0	1.0	3.0	1.0	9.0	16.0	26.0		25.0	26.0	---
27	14.0	5.0	1.0	1.0	2.0	10.0	17.0	22.0		25.0	27.0	---
28	13.0	4.0	.0	2.0	3.0	12.0	15.0	26.0		26.0	25.0	---
29	14.0	4.0	1.0	2.0	---	14.0	14.0	25.0		26.0	26.0	---
30	15.0	4.0	.0	.0	---	16.0	16.0	26.0		23.0	25.0	---
31	12.0	---	.0	1.0	---	16.0	---	---		23.5	25.0	---
MEAN	15.5	7.5	1.5	1.0	1.5	7.5	13.5	22.5		23.5	25.5	---

09314500 PRICE RIVER AT WOODSIDE, UT—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.—December 1946 to September 1949, February 1951 to current year.
SPECIFIC CONDUCTANCE: February 1951 to September 30, 1978, once-daily.
WATER TEMPERATURES: February 1951 to September 1959, November 1961 to September 1963, October 1964 to September 30, 1978, once-daily.
SEDIMENT DATA: October 1975 to current year, monthly.

REMARKS.—Unpublished daily records of specific conductance obtained before water year 1965 were included in the determination of extremes for period of daily record and are available in files of district office.

EXTREMES FOR PERIOD OF DAILY RECORD.—
SPECIFIC CONDUCTANCE: Maximum daily, 8,540 micromhos Dec. 11, 1951; minimum daily, 814 micromhos June 1, 1952.
WATER TEMPERATURES: Maximum, 32.0°C July 10, 11, 1954 and Apr. 7, 1977; minimum, 0.0°C on many days during winter period each year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE, WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)
NOV								
16...	1730	38	4780	8.7	--	3.0	--	--
DEC								
18...	1430	40	5510	8.3	5.5	.0	24	13.0
JAN								
21...	1330	48	3550	8.5	5.5	.0	38	10.4
FEB								
20...	1100	854	2430	8.1	12.5	2.5	3200	8.5
MAR								
24...	1200	94	3750	8.3	10.0	6.0	380	9.8
APR								
21...	1130	422	1370	8.0	25.0	11.5	2000	8.7
MAY								
22...	1000	876	1090	8.3	23.0	15.0	110	7.8
JUN								
26...	1000	180	1790	8.2	27.0	18.0	280	8.3
JUL								
31...	1300	66	2330	8.3	34.5	23.0	--	7.5
AUG								
20...	1200	67	2520	8.2	27.0	18.0	240	8.8
SEP								
18...	0930	95	3030	8.2	18.5	16.5	600	8.3

DATE	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)
NOV							
16...	310	32	308	1.2	--	--	--
DEC							
18...	510	2	422	4.1	5660	7.70	611
JAN							
21...	400	18	358	2.2	3310	4.50	429
FEB							
20...	520	0	427	6.6	1930	2.62	4450
MAR							
24...	390	0	320	3.1	3260	4.43	827
APR							
21...	480	0	394	7.7	1030	1.40	1170
MAY							
22...	490	0	402	3.9	761	1.04	1800
JUN							
26...	350	0	287	3.5	1440	1.96	700
JUL							
31...	270	0	221	2.2	--	--	--
AUG							
20...	340	0	279	3.4	2080	2.83	376
SEP							
18...	420	0	344	4.2	2560	E3.48	657

09314500 PRICE RIVER AT WOODSIDE, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS NH4)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, TOTAL (MG/L AS PO4)
DEC									
18...	1.8	.410	.50	1.1	1.5	3.3	15	.230	.71
JAN									
21...	1.2	.420	.51	.98	1.4	2.6	12	.300	.92
FEB									
20...	1.1	.370	.45	12	12	13	58	.020	.06
MAR									
24...	1.1	.340	.41	.96	1.3	2.4	11	.700	2.1
APR									
21...	.57	.240	.29	4.6	4.8	5.4	24	6.500	20
MAY									
22...	.34	.070	.08	2.5	2.6	2.9	13	2.800	8.6
JUN									
26...	.29	.000	.00	.71	.71	1.0	4.4	.850	2.6
AUG									
20...	.44	.080	.10	1.8	1.9	2.3	10	.420	1.3
SEP									
18...	.60	.060	.07	1.4	1.5	2.1	9.3	.300	.92

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ALUMINUM, SUSPENDED RECOV. (UG/L AS AL)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE)	BERYLLIUM, SUSPENDED RECOV. (UG/L AS BE)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)
APR											
21...	1130	15000	15000	20	19	17	2	0	0	0	2
AUG											
20...	1200	--	--	--	--	--	--	--	--	--	--
SEP											
18...	0930	--	--	--	--	--	--	--	--	--	--

DATE	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)
APR											
21...	2	0	70	70	589	150	150	3	83000	83000	0
AUG											
20...	--	--	--	--	341	--	--	--	--	--	--
SEP											
18...	--	--	--	--	424	--	--	--	--	--	--

DATE	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)
APR											
21...	150	90	60	70	2600	2600	10	.2	.2	.0	4
AUG											
20...	--	--	--	--	--	--	--	--	--	--	--
SEP											
18...	--	--	--	--	--	--	--	--	--	--	--

DATE	MOLYBDENUM, SUSPENDED RECOV. (UG/L AS MO)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
APR											
21...	1	3	300	96	1	5	1	4	490	380	110
AUG											
20...	--	--	--	--	--	--	--	--	--	--	--
SEP											
18...	--	--	--	--	--	--	--	--	--	--	--

GREEN RIVER BASIN

09314500 PRICE RIVER AT WOODSIDE, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS)
NOV						
16...	1730	10.1	9.61	1.55	.500	316
APR						
21...	1130	9.21	8.74	.070	.000	6714
JUN						
26...	1000	.866	.866	.000	.000	--
JUL						
31...	1300	3.86	3.78	.190	.000	421
AUG						
20...	1200	3.39	2.91	.480	.020	1000
SEP						
18...	0930	.472	.394	.000	.000	--

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, WATER (DEG C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
NOV					
16...	1730	38	3.0	93	9.5
DEC					
18...	1430	40	.0	139	15
FEB					
20...	1100	854	2.5	12200	28100
MAR					
24...	1200	94	6.0	1070	272
APR					
21...	1130	422	11.5	8350	9510
MAY					
22...	1000	876	15.0	4040	9560
JUN					
26...	1000	180	18.0	1610	782
JUL					
31...	1300	66	23.0	276	49
SEP					
18...	0930	95	16.5	1610	413

09314500 PRICE RIVER AT WOODSIDE, UT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1946 to September 1949, February 1951 to current year.

SPECIFIC CONDUCTANCE: February 1951 to September 30, 1978, once-daily.
WATER TEMPERATURES: February 1951 to September 1959, November 1961 to September 1963, October 1964 to September 30, 1978, once-daily.
SEDIMENT DATA: October 1975 to current year, monthly.

REMARKS.--Unpublished daily records of specific conductance obtained before water year 1965 were included in the determination of extremes for period of daily record and are available in files of district office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 8,540 micromhos Dec. 11, 1951; minimum daily, 814 micromhos June 1, 1952.
WATER TEMPERATURES: Maximum, 32.0°C July 10, 11, 1954 and Apr. 7, 1977; minimum, 0.0°C on many days during winter period each year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT										
27...	1730	24	4110	8.6	11.0	10.6	1300	1100	180	210
DEC										
14...	1200	22	6540	8.3	.0	12.6	1800	1600	210	320
JAN										
31...	1300	27	4270	8.0	.0	10.8	1400	1100	250	200
MAR										
02...	1130	54	3100	8.2	.0	10.6	1100	780	190	150
APR										
04...	1430	173	5660	8.4	9.5	9.7	1600	1200	170	280
MAY										
02...	1400	590	1110	8.3	10.5	9.1	420	43	83	51
22...	1500	600	1150	8.3	18.0	8.2	450	40	89	55
JUL										
24...	1100	72	4230	8.2	21.5	.0	1400	1000	230	200
SEP										
06...	1130	20	3540	8.2	19.0	--	1100	740	210	140
20...	1430	29	3220	8.3	21.5	9.1	1000	780	180	140

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	SODIUM+ POTAS-SIUM DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)
OCT									
27...	620	50	7.4	--	11	240	23	235	1.2
DEC									
14...	990	54	10	--	17	--	--	210	--
JAN									
31...	600	47	6.9	--	11	--	--	370	--
MAR									
02...	420	45	5.5	--	10	390	0	320	3.9
APR									
04...	840	53	9.2	--	15	420	6	354	2.8
MAY									
02...	110	36	2.3	--	3.4	460	0	377	3.7
22...	110	35	2.3	110	3.6	500	0	410	4.0
JUL									
24...	560	46	6.5	570	12	480	0	394	4.8
SEP									
06...	500	67	6.6	510	8.7	440	0	361	4.4
20...	480	69	6.5	490	9.4	270	0	221	2.2

09314500 PRICE RIVER AT WOODSIDE, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	IRON, DIS- SOLVED (UG/L AS FE)
OCT										
27...	2300	91	.3	.7	3910	3560	5.32	253	35	50
DEC										
14...	3700	110	.4	10	6240	5480	8.49	371	37	60
JAN										
31...	2200	82	.3	10	4040	3580	5.49	295	0	20
MAR										
02...	1600	70	.3	8.8	2880	2640	3.92	420	59	10
APR										
04...	3000	97	.5	7.0	5370	4620	7.30	2510	592	30
MAY										
02...	390	21	.3	8.8	822	894	1.12	1310	3330	20
22...	410	17	.3	10	862	941	1.17	1400	3170	10
JUL										
24...	2200	79	.4	6.7	3780	3530	5.14	735	3320	90
SEP										
06...	2000	69	.4	.9	3230	3150	4.39	174	51	20
20...	1800	52	.3	.8	2910	2800	3.96	228	8	20

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	BORON, DIS- SOLVED (UG/L AS B)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)
OCT									
27...	.02	.00	1.1	1.1	1.1	.050	520	8.8	8.7
DEC									
14...	--	--	--	--	--	.200	600	11	10
JAN									
31...	1.4	.96	.44	1.4	2.8	.230	420	6.9	6.6
MAR									
02...	1.2	.72	.48	1.2	2.4	.220	370	7.4	7.3
APR									
04...	1.6	.19	1.4	1.6	3.2	.580	350	19	11
MAY									
02...	.55	.08	3.9	4.0	4.6	2.10	150	6.3	3.4
22...	.61	.02	3.3	3.3	3.9	1.90	120	15	5.1
JUL									
24...	.61	.18	1.2	1.4	2.0	.400	380	61	14
SEP									
06...	.01	.04	.37	.41	.42	.070	460	--	9.8
20...	.05	.09	1.0	1.1	1.2	.020	410	8.6	7.0

DATE	TIME	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ALUM- INUM, SUS- PENDED RECOV. (UG/L AS AL)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDED TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	BERYL- LIUM, SUS- PENDED RECOV. (UG/L AS BE)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDED RECOV- ERABLE (UG/L AS CD)
MAY												
22...	1500	120	90	30	--	4	--	--	0	--	--	0
SEP												
29...	1430	240	220	20	1	0	1	0	0	0	5	0

DATE	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	CHRO- MIUM, SUS- PENDED RECOV. (UG/L AS CR)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDED RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDED RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDED RECOV- ERABLE (UG/L AS PB)
MAY											
22...	--	--	40	--	49	47	--	46000	46000	100	81
SEP											
20...	8	0	0	0	1	0	1	280	260	68	0

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM TOTAL RECOV- ERABLE (UG/L AS LI)	LITHIUM SUS- PENDED RECOV- ERABLE (UG/L AS LI)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDED RECOV. (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDED RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)
MAY											
22...	--	130	70	60	1300	1300	--	--	.1	.0	4
SEP											
20...	150	250	0	250	30	10	20	.9	.8	.1	1

GREEN RIVER BASIN

09314500 PRICE RIVER AT WOODSIDE, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	MOLYBDENUM, SUSPENDED RECOV. (UG/L AS MO)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
MAY											
22...	4	--	--	57	--	--	1	--	230	180	--
SEP											
20...	0	2	3	0	3	5	1	4	10	0	10

SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SEDIMENT, SUSPENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)
OCT					
27...	1730	24	60	--	3.9
DEC					
14...	1200	22	125	90	7.4
JAN					
31...	1300	27	16	--	1.2
MAR					
02...	1130	54	188	--	27
APR					
04...	1430	173	1400	--	654
MAY					
02...	1400	590	5560	75	8860
22...	1500	600	4240	--	6870
JUL					
24...	1100	72	3410	--	663
SEP					
06...	1130	20	248	--	13
20...	1430	29	147	--	12

09314500 PRICE RIVER AT WOODSIDE, UT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1946 to September 1949, February 1951 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February 1951 to current year.
WATER TEMPERATURES: February 1951 to September 1959, November 1961 to September 1963, October 1964 to current year.

REMARKS.--Unpublished daily records of specific conductance obtained before water year 1965 were included in the determination of extremes for period of daily record and are available in files of district office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 8,540 micromhos Dec. 11, 1951; minimum daily, 814 micromhos June 1, 1952.
WATER TEMPERATURES: Maximum, 32.0°C July 10, 11, 1954; minimum, 0.0°C on many days during winter period each year.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 5,680 micromhos Feb. 15; minimum daily, 2,000 micromhos July 28.
WATER TEMPERATURES: Maximum, 28.5°C June 29; minimum, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)
OCT										
30...	1030	71	3680	8.6	4.5	11.0	1200	960	200	180
NOV										
20...	1115	61	4170	8.7	.0	12.1	1400	1000	240	190
DEC										
19...	1030	32	4920	8.4	.0	12.0	1800	1400	310	240
JAN										
08...	1230	40	4950	8.4	.0	11.6	1800	1400	310	250
FEB										
26...	1200	74	3420	8.5	3.0	11.4	1200	820	230	160
MAR										
25...	1300	61	2930	8.6	6.0	10.4	1000	660	180	140
APR										
29...	1420	57	3630	8.0	18.0	10.4	1200	890	180	180
MAY										
26...	1100	106	3420	8.5	17.0	7.4	1100	760	180	160
JUN										
24...	1330	38	3560	8.2	18.0	8.0	1200	880	210	160
JUL										
29...	1345	50	2200	8.2	26.5	6.5	770	560	170	85
AUG										
24...	1330	66	3160	8.2	23.0	7.7	1200	890	210	160
SEP										
29...	1200	44	3850	8.2	15.0	8.6	1300	1000	240	170

DATE	DISSOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT										
30...	520	6.4	9.4	304	16	2000	56	.2	3360	3130
NOV										
20...	540	6.3	6.9	410	13	2100	59	3.6	3690	3360
DEC										
19...	730	7.6	10	500	9	2800	78	6.3	4770	4430
JAN										
08...	710	7.3	11	530	8	2800	78	7.4	4830	4440
FEB										
26...	430	5.3	8.3	440	14	1700	59	5.9	3100	2830
MAR										
25...	380	5.2	7.1	420	13	1400	48	5.1	2520	2380
APR										
29...	520	6.6	8.6	330	20	1900	56	3.2	3240	3030
MAY										
26...	420	5.5	8.0	400	14	1700	46	6.9	2980	2730
JUN										
24...	420	5.3	7.5	390	0	1800	53	2.9	3090	2850
JUL										
29...	230	3.6	7.0	260	0	1000	31	6.0	1870	1660
AUG										
24...	440	5.6	11	375	0	1900	51	1.3	3030	2960
SEP										
29...	510	6.2	12	319	0	1900	55	6.8	3400	3050

GREEN RIVER BASIN

09314500 PRICE RIVER AT WOODSIDE, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL ORGANIC NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	DIS-SOL-VED ORGANIC CARBON (C) (MG/L)
OCT									
30...	4.57	644	.39	.01	.83	.84	1.2	8.5	8.3
NOV									
20...	5.02	608	1.4	.03	1.3	1.3	2.7	8.8	8.2
DEC									
19...	6.49	412	1.5	.26	2.9	3.2	4.7	9.0	8.5
JAN									
08...	6.57	522	1.6	.55	2.3	2.8	4.4	12	--
FEB									
26...	4.22	619	1.2	.77	1.1	1.9	3.1	13	6.4
MAR									
25...	3.43	415	1.1	.03	2.1	2.1	3.2	11	6.9
APR									
29...	4.41	499	.26	.00	.85	.85	1.1	11	6.9
MAY									
26...	4.05	853	.96	.08	2.4	2.5	3.5	13	--
JUN									
24...	4.20	317	.12	.10	7.6	7.7	7.8	19	13
JUL									
29...	2.54	252	.94	.09	17	17	18	34	7.4
AUG									
24...	4.12	540	.37	.00	3.1	3.1	3.5	52	9.3
SEP									
29...	4.62	404	1.6	.00	3.1	3.1	4.7	27	9.1

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
Oct 30	1030	CHLOROPHYTA	GREEN ALGAE		
		.CHLOROPHYCEAE			
		..CHLOROCOCCALES			
		...CHARACIACEAE			
		....SCHROEDERIA		10	1
		...OCCYSTACEAE			
		....ANKISTRODESMUS		20	2
		...SCENEDESMACEAE			
		....SCENEDESMUS		40	4
		CHRYSOPHYTA			
		.BACILLARIOPHYCEAE	DIATOMS		
		..PENNALES	PENNATE		
		...CYMBELLACEAE			
		....CYMBELLA		10	1
		...GOMPHONEMATACEAE			
		....GOMPHONEMA		20	2
		...NAVICULACEAE	NAVICULOID		
	D	....AMPHIPRORA		220	23
	D	....NAVICULA		280	30
		...NITZSCHIACEAE			
	D	....NITZSCHIA		210	22
		...SURIRELLACEAE			
		....SURIRELLA		99	11
		CYANOPHYTA	BLUE-GREEN ALGAE		
		.MYXOPHYCEAE			
		..OSCILLATORIALES	FILAMENTOUS		
		...OSCILLATORIACEAE			
		....PHORMIDIUM		30	3
		TOTAL		930	

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV	0.583
CLASS	0.583
ORDER	0.583
FAMILY	2.040
GENERA	2.566

09314500 PRICE RIVER AT WOODSIDE, UT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
Nov 20	1115	CHRYSOPHYTA			
		.BACILLARIOPHYCEAE	DIATOMS		
		..CENTRALES	CENTRIC		
		...COSCINODISCACEAE			
		....CYCLOTELLA		87	4
		..PENNALES	PENNATE		
		...GOMPHONEMATACEAE			
		....GOMPHONEMA		170	8
		...NAVICULACEAE	NAVICULOID		
		....AMPHIPRORA		87	4
		D ....NAVICULA		520	24
		...NITZSCHIACEAE			
		D ....NITZSCHIA		430	20
		...SURIRELLACEAE			
		D ....SURIRELLA		860	40
		TOTAL		2,200	

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
ORDER 0.242
FAMILY 1.945
GENERA 2.150

Date	Time	ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
Dec 19	1030	CHRYSOPHYTA			
		.BACILLARIOPHYCEAE	DIATOMS		
		..CENTRALES	CENTRIC		
		...COSCINODISCACEAE			
		L ....CYCLOTELLA			0
		..PENNALES	PENNATE		
		...NAVICULACEAE	NAVICULOID		
		....AMPHIPRORA		15	5
		L ....GYROSIGMA			0
		D ....NAVICULA		150	48
		...NITZSCHIACEAE			
		....NITZSCHIA		45	14
		...SURIRELLACEAE			
		D ....SURIRELLA		100	33
		TOTAL		310	

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
FAMILY 1.418
GENERA 1.648

Date	Time	ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
Jan 8	1230	CHRYSOPHYTA			
		.BACILLARIOPHYCEAE	DIATOMS		
		..PENNALES	PENNATE		
		...ACHNANTHACEAE			
		....COCCONEIS		38	8
		...NAVICULACEAE	NAVICULOID		
		....AMPHIPRORA		38	8
		D ....NAVICULA		170	38
		...NITZSCHIACEAE			
		....NITZSCHIA		19	4
		...SURIRELLACEAE			
		D ....SURIRELLA		190	42
		TOTAL		450	

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
FAMILY 1.532
GENERA 1.845

GREEN RIVER BASIN

09314500 PRICE RIVER AT WOODSIDE, UT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
Feb 26	1200	CHRYSOPHYTA			
		.BACILLARIOPHYCEAE	DIATOMS		
		..PENNALES	PENNATE		
		...NAVICULACEAE	NAVICULOID		
		D ....NAVICULA		2,600	53
		...NITZSCHIACEAE			
		....NITZSCHIA		290	6
		...SURIRELLACEAE			
		D ....SURIRELLA		2,000	41
		TOTAL		4,900	
		NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%			
		ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE			
		DIVERSITY INDICES. BASED ON ACTUAL COUNTS:			
		FAMILY 1.253			
		GENERA 1.253			
Mar 25	1300	CHLOROPHYTA	GREEN ALGAE		
		.CHLOROPHYCEAE			
		..CHLOROCOCCALES			
		...OOCYSTACEAE			
		....ANKISTRODESMUS		110	5
		CHRYSOPHYTA			
		.BACILLARIOPHYCEAE	DIATOMS		
		..PENNALES	PENNATE		
		...CYMBELLACEAE			
		L ....CYMBELLA			0
		...NAVICULACEAE	NAVICULOID		
		D ....NAVICULA		1,900	85
		...SURIRELLACEAE			
		....SURIRELLA		230	10
		EUGLENOPHYTA	EUGLENOIDS		
		.EUGLENOPHYCEAE			
		..EUGLENALES			
		...EUGLENACEAE			
		L ....EUGLENA			0
		TOTAL		2,300	
		NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%			
		L - LESS THAN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED			
		ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE			
		DIVERSITY INDICES. BASED ON ACTUAL COUNTS:			
		PHYL/DIV 0.286			
		CLASS 0.286			
		ORDER 0.286			
		FAMILY 0.748			
		GENERA 0.748			

09314500 PRICE RIVER AT WOODSIDE, UT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
Apr 29	1420	CHLOROPHYTA	GREEN ALGAE		
		.CHLOROPHYCEAE			
		..CHLOROCOCCALES			
		...CHARACIACEAE			
		....SCHROEDERIA		18	1
		...OCCYSTACEAE			
		D ....ANKISTRODESMUS		400	22
		....SELENASTRUM		110	6
		..VOLVOCALES			
		...CHLAMYDOMONADACEAE			
		....CARTERIA		160	9
		....CHLAMYDOMONAS		140	8
		..ZYGNEMATALES			
		...DESMIDIACEAE	PLACODERM DESMIDS		
		....COSMARIUM		36	2
		CHRYSOPHYTA			
		.BACILLARIOPHYCEAE	DIATOMS		
		..PENNALES	PENNATE		
		...CYMBELLACEAE			
		....CYMBELLA		54	3
		...NAVICULACEAE	NAVICULOID		
		D ....NAVICULA		690	37
		...SURIRELLACEAE			
		....SURIRELLA		110	6
		EUGLENOPHYTA	EUGLENOIDS		
		.CRYPTOPHYCEAE	CRYPTOMONADS		
		..CRYPTOMONIDALES			
		...CRYPTOMONODACEAE			
		....CRYPTOMONAS		54	3
		.EUGLENOPHYCEAE			
		..EUGLENALES			
		...EUGLENACEAE			
		....EUGLENA		36	2
		....TRACHELOMONAS		36	2
		TOTAL		1,800	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 1.292
CLASS 1.360
ORDER 1.906
FAMILY 2.373
GENERA 2.784

Date	Time	ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
May 26	1100	CHLOROPHYTA	GREEN ALGAE		
		.CHLOROPHYCEAE			
		..CHLOROCOCCALES			
		...OCCYSTACEAE			
		....ANKISTRODESMUS		76	1
		CHRYSOPHYTA			
		.BACILLARIOPHYCEAE	DIATOMS		
		..CENTRALES	CENTRIC		
		...COSCINODISCACEAE			
		....CYCLOTELLA		76	1
		..PENNALES	PENNATE		
		...NAVICULACEAE	NAVICULOID		
		....AMPHIPRORA		150	3
		....CALONEIS		76	1
		....GYROSIGMA		76	1
		D ....NAVICULA		3,000	55
		...NITZSCHIACEAE			
		....NITZSCHIA		460	8
		...SURIRELLACEAE			
		....SURIRELLA		610	11
		CYANOPHYTA	BLUE-GREEN ALGAE		
		.MYXOPHYCEAE			
		..OSCILLATORIALES	FILAMENTOUS		
		...OSCILLATORIACEAE			
		D ....OSCILLATORIA		910	16
		EUGLENOPHYTA	EUGLENOIDS		
		.EUGLENOPHYCEAE			
		..EUGLENALES			
		...EUGLENACEAE			
		L ....EUGLENA			0
		....TRACHELOMONAS		76	1
		TOTAL		5,500	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
L - LESS THAN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 0.846
CLASS 0.846
ORDER 0.946
FAMILY 1.769
GENERA 2.116

GREEN RIVER BASIN

09314500 PRICE RIVER AT WOODSIDE, UT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
Jun 24	1330	CHRYSOPHYTA			
		•BACILLARIOPHYCEAE	DIATOMS		
		••PENNALES	PENNATE		
		•••NAVICULACEAE	NAVICULOID		
		D ••••NAVICULA			
		•••NITZSCHIACEAE		4,500	73
		••••NITZSCHIA			
		•••SURIRELLACEAE		570	9
		D ••••SURIRELLA			
		•••ACHNANTHACEAE		1,100	18
		L ••••RHOICOSPHENIA			0
		TOTAL		6,200	
		NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%			
		L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED			
		ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE			
		DIVERSITY INDICES, BASED ON ACTUAL COUNTS:			
		FAMILY 1.096			
		GENERA 1.096			
Jul 29	1345	CHRYSOPHYTA			
		•BACILLARIOPHYCEAE	DIATOMS		
		••PENNALES	PENNATE		
		•••NITZSCHIACEAE			
		D ••••NITZSCHIA			
		TOTAL		470	100
		NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%			
		ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE			
Aug 24	1330	CHRYSOPHYTA			
		•BACILLARIOPHYCEAE	DIATOMS		
		••CENTRALES	CENTRIC		
		•••COSCINODISCACEAE			
		D ••••CYCLOTELLA			
		••PENNALES	PENNATE	5,000	29
		•••NAVICULACEAE	NAVICULOID		
		••••GYROSIGMA			
		••••NAVICULA		500	3
		•••NITZSCHIACEAE		2,000	11
		D ••••NITZSCHIA			
		•••SURIRELLACEAE		3,000	17
		••••SURIRELLA			
		CYANOPHYTA		990	6
		•MYXOPHYCEAE	BLUE-GREEN ALGAE		
		••OSCILLATORIALES			
		•••OSCILLATORIACEAE	FILAMENTOUS		
		D ••••OSCILLATORIA			
		TOTAL		5,000	34
		NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%		17,000	
		ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE			
		DIVERSITY INDICES, BASED ON ACTUAL COUNTS:			
		PHYL/DIV 0.928			
		CLASS 0.928			
		ORDER 1.577			
		FAMILY 2.119			
		GENERA 2.222			

09314500 PRICE RIVER AT WOODSIDE, UT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
Sep 29	1200	CHRYSOPHYTA			
		.BACILLARIOPHYCEAE	DIATOMS		
		..CENTRALES	CENTRIC		
		...COSCINODISCACEAE			
		....CYCLOTELLA		38	5
		..PENNALES	PENNATE		
		...CYMBELLACEAE			
		....CYMBELLA		19	3
		...NAVICULACEAE	NAVICULOID		
		....NAVICULA		38	5
		...NITZSCHIACEAE			
	D	....NITZSCHIA		210	28
		...SURIRELLACEAE			
		....SURIRELLA		38	5
		CYANOPHYTA	BLUE-GREEN ALGAE		
		.MYXOPHYCEAE			
		..OSCILLATORIALES	FILAMENTOUS		
		...NOSTOCACEAE			
		....ANABAENA		400	54
		TOTAL		740	

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER + 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 0.996
CLASS 0.996
ORDER 1.228
FAMILY 1.791
GENERA 1.791

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2800	3700	---	5380	3450	3600	3600	4200	4250	3600	3150	3400
2	2800	3800	4000	5500	3500	3600	3800	4490	4000	3600	3200	3250
3	2900	3800	4300	5290	3650	3600	3700	4150	4100	3700	2850	3800
4	2900	3900	3500	4680	4050	3700	3600	4200	4000	3100	2600	3100
5	2800	3800	3600	4850	4000	3700	3700	4480	3900	3100	2800	2900
6	3210	3550	2750	4530	4080	3500	3300	4180	3700	3300	3100	3100
7	3200	3600	3400	5050	4200	3700	3900	3580	3500	3100	2600	3300
8	3190	3650	3200	4980	4050	3500	3900	3510	3300	3200	2800	2950
9	3200	3800	3200	2560	4080	3850	4000	3050	3300	3200	2700	2550
10	3200	3900	3300	4320	3800	3800	4000	3590	3200	3200	4400	2650
11	2900	4000	---	4490	4000	3300	3100	3510	3100	3300	3700	2750
12	2980	3600	3300	4200	4600	3500	3000	3750	3100	3200	3100	2150
13	2980	3400	3500	4100	4500	3400	2800	3810	2800	3600	3200	2450
14	3000	3900	3600	4180	5150	3150	2800	3690	2700	3400	3350	2150
15	3050	4000	3500	4200	5680	3100	2700	3700	2600	3200	3400	2550
16	3000	4200	3800	4100	5150	3700	3700	3880	2800	3300	3450	3200
17	2870	3250	4200	3840	5240	3400	4200	4020	---	3300	3100	2800
18	2980	3200	3900	3910	5380	3400	4800	4190	2800	3500	3100	2700
19	3100	4000	4500	3710	4850	3800	4600	3800	2700	3300	3050	3100
20	3200	3900	4600	3390	4800	3600	4400	3900	2700	3200	3100	3400
21	3280	3700	---	3360	4400	3200	4400	3390	3100	3500	3600	3500
22	3300	3700	3300	3390	4300	3200	4200	3740	3000	3300	3500	3400
23	3650	3450	4400	3600	5120	3200	4800	3790	3400	3000	3400	3400
24	3810	3700	4500	3760	4600	3600	4200	3510	3500	3100	3600	3400
25	3800	3700	4600	3640	4240	3200	4000	3780	3900	3200	3300	2900
26	3590	3800	4540	3640	3900	3100	4200	4200	4200	2800	3000	3200
27	3720	3450	4200	3580	4100	3000	4700	3280	3600	4200	2900	3100
28	---	3450	4400	3560	4000	3000	4200	3430	3600	2000	3100	3000
29	3700	3800	4200	3550	3800	3200	4400	3910	3800	2200	3500	3300
30	3800	4600	3500	3490	---	3250	4800	4230	3800	2700	3500	3400
31	3550	---	3100	3350	---	3300	---	4390	---	3000	3450	---
MONTH	3220	3740	3820	4070	4370	3420	3920	3850	3390	3210	3210	3030
YEAR	MAX	5690	MIN	2000	MEAN	3600						

GREEN RIVER BASIN

09314500 PRICE RIVER AT WOODSIDE, UT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	10.5	0.5	0.0	1.5	8.5	12.5	20.0	24.0	16.5	21.5	15.0
2	17.5	11.0	0.5	0.0	1.5	6.0	15.0	18.0	22.5	18.0	18.5	14.5
3	14.5	11.0	1.5	0.5	1.5	0.5	15.5	17.0	22.0	18.0	18.5	15.0
4	11.5	11.0	1.0	1.0	0.5	3.5	15.5	16.0	25.0	18.0	18.5	16.5
5	17.0	10.5	1.0	0.5	1.5	2.5	15.0	16.0	23.5	23.0	15.5	15.5
6	17.0	9.5	1.0	1.5	1.5	3.0	11.5	12.0	26.0	19.5	15.5	15.5
7	13.0	7.0	1.5	0.5	1.5	5.5	---	17.0	24.0	20.0	14.5	15.5
8	10.0	7.5	1.0	0.5	1.0	5.5	17.0	16.0	24.0	19.5	16.0	15.5
9	11.5	6.5	1.0	1.0	1.0	6.5	17.0	13.0	25.0	21.0	15.0	15.5
10	16.5	4.0	1.5	0.5	1.5	7.5	16.0	20.0	23.0	22.5	16.5	17.0
11	14.5	3.5	1.5	1.0	1.5	4.5	16.0	20.0	20.5	21.0	16.0	18.5
12	10.0	3.0	0.5	1.0	2.0	3.5	14.5	19.0	20.5	21.0	15.5	15.0
13	10.0	1.5	1.5	1.5	3.5	5.5	12.5	23.0	14.0	21.0	16.5	14.5
14	10.0	2.5	0.5	1.5	3.5	7.0	11.5	24.0	19.5	22.0	15.0	15.5
15	11.5	3.5	1.0	1.0	4.0	7.0	12.0	24.0	23.5	19.0	15.0	16.0
16	10.0	6.0	0.5	0.5	3.5	7.0	10.0	14.0	21.0	20.0	14.5	15.5
17	10.5	3.5	0.5	0.0	0.0	9.5	9.5	25.0	---	22.5	16.0	14.0
18	11.0	4.5	0.5	0.0	0.0	6.5	12.0	23.0	24.0	21.0	16.0	13.0
19	11.0	3.5	0.5	1.5	3.5	7.0	14.5	23.0	18.0	19.0	16.5	14.0
20	14.0	0.0	0.5	1.5	1.0	5.5	15.5	21.0	18.5	21.0	17.5	13.5
21	10.5	1.5	0.5	1.5	1.5	7.0	16.0	16.0	18.0	19.0	18.5	14.0
22	11.0	1.5	1.5	1.5	1.5	5.5	14.5	17.0	18.5	20.0	19.0	14.5
23	8.5	0.5	0.5	1.5	1.5	9.0	15.0	21.0	15.0	21.5	20.0	14.0
24	5.0	0.5	0.5	1.5	3.5	9.0	17.0	22.0	13.0	20.0	18.5	15.5
25	6.5	0.5	1.5	1.0	4.5	5.0	11.5	21.0	14.5	20.5	18.5	14.5
26	8.5	0.0	0.5	1.5	5.5	5.0	12.0	23.0	17.0	19.5	18.5	15.0
27	8.5	0.0	1.5	1.0	5.5	3.5	15.5	24.0	15.5	20.5	15.0	13.5
28	---	0.5	1.0	1.5	5.0	7.0	15.0	23.0	18.0	20.0	15.5	12.5
29	10.0	0.0	0.5	1.5	5.0	7.0	16.5	18.0	20.5	21.0	15.5	12.5
30	4.5	1.0	0.5	1.5	---	11.0	20.0	23.0	20.0	21.0	17.0	11.0
31	7.0	---	0.0	1.0	---	10.0	---	21.0	---	21.0	16.0	---
MONTH	11.5	4.0	1.0	1.0	2.5	6.0	14.5	19.5	20.5	20.0	17.0	14.5

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TEMPERATURE (DEG C)	INSTANTANEOUS DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
OCT					
30...	1030	4.5	71	48	9.2
DEC					
19...	1030	.0	32	1090	94
JAN					
08...	1230	.0	40	71	7.7
FEB					
26...	1200	3.0	74	920	184
MAR					
25...	1300	6.0	61	927	153
APR					
29...	1420	18.0	57	322	50
MAY					
26...	1100	17.0	106	2200	630
JUN					
24...	1330	18.0	38	5480	562
JUL					
29...	1340	26.5	50	4920	664
AUG					
24...	1330	23.0	66	5630	1000
SEP					
29...	1200	15.0	44	1720	204

09314500 PRICE RIVER AT WOODSIDE, UT—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.—December 1946 to September 1949, February 1951 to current year.

PERIOD OF DAILY RECORD.—
SPECIFIC CONDUCTANCE: February 1951 to current year.
WATER TEMPERATURES: February 1951 to September 1959, November 1961 to September 1963, October 1964 to current year.

REMARKS.—Unpublished daily records of specific conductance obtained before water year 1965 were included in the determination of extremes for period of daily record and are available in files of district office.

EXTREMES FOR PERIOD OF DAILY RECORD.—
SPECIFIC CONDUCTANCE: Maximum daily, 8,540 micromhos Dec. 11, 1951; minimum daily, 814 micromhos June 1, 1952.
WATER TEMPERATURES: Maximum, 32.0°C July 10, 11, 1954 and July 1, 1977; minimum, 0.0°C on many days during winter period each year.

EXTREMES FOR CURRENT YEAR.—
SPECIFIC CONDUCTANCE: Maximum daily, 7,400 micromhos July 1; minimum daily, 1,250 micromhos July 26.
WATER TEMPERATURES: Maximum, 32.0°C Aug. 7; minimum, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
OCT											
21...	1315	38	4020	8.5	7.0	10.7	1500	1200	220	220	590
NOV											
19...	1600	33	4875	8.5	6.0	11.4	1600	1300	250	230	620
DEC											
16...	1230	40	5665	8.5	.5	12.6	2000	1600	310	290	830
JAN											
20...	0600	20	5240	8.2	.0	11.0	2000	1500	340	270	800
MAR											
11...	1430	30	4820	8.5	7.0	11.2	1700	1400	270	240	700
22...	1040	23	4670	8.6	5.5	12.4	1700	1400	260	250	760
APR											
28...	1300	14	5965	8.3	18.0	9.2	1900	1700	280	290	950
MAY											
19...	1530	33	5360	8.4	18.0	8.6	1700	1300	300	240	840
JUN											
29...	1500	1.5	6950	8.4	29.0	12.0	2400	2300	400	350	1100
JUL											
21...	1630	80	2180	7.4	25.5	6.0	890	770	250	65	200
AUG											
25...	0830	20	1390	7.6	17.5	7.1	620	520	220	16	79
SEP											
28...	1000	1.6	3710	8.7	14.5	11.4	1300	1200	230	170	490

DATE	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED SOLIDS (TONS PER DAY)
OCT											
21...	6.7	10	310	12	2100	57	.3	3910	3360	5.32	401
NOV											
19...	6.8	11	300	14	2500	68	.1	4270	3840	5.81	380
DEC											
16...	8.1	11	485	11	3200	81	5.9	5440	4980	7.40	588
JAN											
20...	7.9	11	570	0	3100	84	8.6	5230	4900	7.11	282
MAR											
11...	7.5	9.9	366	0	2500	82	4.0	4340	3990	5.90	352
22...	8.1	9.0	290	22	2800	90	.4	4730	4340	6.43	294
APR											
28...	9.5	12	271	0	3700	110	1.9	5730	5480	7.79	217
MAY											
19...	8.8	12	460	3	2900	81	6.3	5050	4610	6.87	450
JUN											
29...	9.7	15	200	0	4300	130	2.3	6990	6400	9.51	28.3
JUL											
21...	2.9	14	150	0	1200	24	8.3	1940	1840	2.64	419
AUG											
25...	1.4	9.9	120	0	680	15	7.7	1150	1090	1.56	62.1
SEP											
28...	6.0	11	164	5	2100	73	.0	3320	3160	4.52	14.3

09314500 PRICE RIVER AT WOODSIDE, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL ORGANIC NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	DIS-SOL-VED ORGANIC CARBON (C) (MG/L)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT MG/SQ M	PERI-PHYTON BIOMASS ASH WEIGHT MG/SQ M	CHLOR-A PERI-PHYTON CHROMO-SPECT-METRIC (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-SPECT-METRIC (MG/M2)
OCT											
21...	.01	.01	.60	.61	.62	10	8.6	--	--	--	--
NOV											
19...	.11	--	--	.46	.57	8.1	7.9	--	--	2.40	0.301
DEC											
16...	<.4	.29	1.1	1.4	3.8	12	8.8	--	--	--	--
JAN											
20...	<.4	1.2	.80	2.0	4.4	8.6	7.3	--	--	--	--
MAR											
11...	1.8	.15	.56	.71	<.5	7.4	7.4	--	--	--	--
22...	.04	.02	.39	.41	.45	9.0	9.0	--	--	--	--
APR											
28...	.05	.01	.99	1.0	1.1	10	10	--	--	--	--
MAY											
19...	1.1	.34	2.3	2.6	3.7	19	11	394	236	0.011	0.003
JUN											
29...	.01	.01	1.4	1.4	1.4	16	--	--	--	--	--
JUL											
21...	1.1	.01	190	190	190	727	9.1	--	--	--	--
AUG											
25...	1.5	.01	24	24	<6	101	5.9	--	--	--	--
SEP											
28...	.07	.06	1.7	1.8	1.9	18	7.7	--	--	--	--

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)
OCT											
21...	1315	1	1	<10	0	0	0	10	4	1100	20
JAN											
20...	0800	1	0	10	0	0	0	<10	1	440	10
MAR											
11...	1430	3	1	10	0	20	0	10	0	1200	20
APR											
28...	1300	1	0	10	1	10	10	20	4	1000	20
JUL											
21...	1630	2	0	80	4	430	10	530	13	510000	70

DATE	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
OCT										
21...	100	1	30	20	.0	.0	6	6	--	200
JAN										
20...	100	2	--	110	.0	.0	12	12	--	80
MAR										
11...	100	2	120	80	.0	.0	14	8	30	20
APR										
28...	100	0	100	90	.0	.0	6	6	40	40
JUL										
21...	1200	10	16000	8	1.7	.0	--	5	2900	100

GREEN RIVER BASIN

09314500 PRICE RIVER AT WOODSIDE, UT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO AUGUST 1977

DATE	OCT 21,76		NOV 19,76		DEC 16,76		JAN 20,77		MAR 11,77		MAR 22,77	
TIME	1315		1800		1230		0800		1430		1040	
TOTAL CELLS/ML	3100		2600		4900		1300		920		1800	
DIVERSITY: DIVISION	0.5		0.9		0.1		0.0		0.0		1.3	
.CLASS	0.5		0.9		0.2		0.0		0.0		1.3	
..ORDER	0.9		0.9		0.2		0.0		0.0		1.3	
...FAMILY	2.2		1.2		0.9		1.3		0.0		2.3	
....GENUS	2.4		1.2		0.9		1.3		0.0		2.4	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...OOCYSTACEAE												
....ANKISTRODESMUS	250	8	--	-	79	2	--	-	--	-	--	-
....CLOSTERIDIUM	--	-	--	-	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	95	4	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....CRUCIGENIA	--	-	--	-	--	-	--	-	--	-	--	-
....SCENEDESMUS	--	-	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	51	2	--	-	--	-	--	-	--	-	270#	15
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..PENNALES												
...NAVICULACEAE												
....ENTOMONEIS	510#	16	--	-	40	1	10	1	--	-	27	2
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	200	7	--	-	--	-	--	-	--	-	14	1
..PENNALES												
...DIATOMACEAE												
....DIATOMA	--	-	2000#	78	4100#	83	990#	75	--	-	27	2
...FRAGILARIACEAE												
....FRAGILARIA	*	0	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	--	-	39	3	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	51	2	--	-	--	-	10	1	--	-	--	-
...NAVICULACEAE												
....NAVICULA	100	3	--	-	600	12	39	3	--	-	180	10
...NITZSCHIACEAE												
....NITZSCHIA	760#	25	40	2	40	1	170	13	--	-	230	13
...SURIRELLACEAE												
....SURIRELLA	1200#	38	16	1	40	1	59	4	--	-	750#	42
...TABELLARIACEAE												
....TABELLARIA	--	-	48	2	--	-	--	-	--	-	--	-
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...CHROMULINACEAE												
....CHRYSOCOCCUS	--	-	--	-	--	-	--	-	--	-	--	-
...OCHROMONADACEAE												
....OCHROMONAS	--	-	--	-	40	1	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....ANACYSTIS	--	-	--	-	--	-	--	-	--	-	--	-
..HORMOGONALES												
...OSCILLATORIACEAE												
....OSCILLATORIA	*	0	360	14	--	-	--	-	920#	100	--	-
....PHORMIMIDIUM	--	-	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOMONODACEAE												
....CRYPTOMONAS	--	-	--	-	--	-	--	-	--	-	--	-
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	--	-	--	-	--	-	260	15
....TRACHELOMONAS	--	-	*	0	--	-	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..GYMNODINIALES												
...GYMNODINIACEAE												
....GYMNODINIUM	--	-	--	-	--	-	--	-	--	-	27	2
..PERIDINIALES												
...PERIDINIACEAE												
....PERIDINIUM	--	-	16	1	--	-	--	-	--	-	--	-

See footnotes at end of table.

GREEN RIVER BASIN

09314500 PRICE RIVER AT WOODSIDE, UT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO AUGUST 1977

DATE	APR 28,77		MAY 19,77		JUN 29,77		JUL 21,77		AUG 25,77	
TIME	1300		1530		1500		1630		0830	
TOTAL CELLS/ML	3400		1900		97000		27		0	
DIVERSITY: DIVISION	1.7		0.9		0.9		0.0		0.0	
.CLASS	1.9		0.9		0.9		0.0		0.0	
..ORDER	2.6		1.2		1.1		0.0		0.0	
...FAMILY	2.7		1.2		1.7		0.0		0.0	
....GENUS	2.7		1.4		2.5		0.0		0.0	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	--	-	31000#	32	--	-	--	-
....CLOSTERIDIUM	--	-	--	-	500	1	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	8000	8	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	1000	1	--	-	--	-
....OOCYSTIS	610#	18	--	-	5000	5	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....CRUCIGENIA	--	-	--	-	7500	8	--	-	--	-
....SCENEDESMUS	--	-	--	-	9600	10	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	410	12	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..PENNALES										
...NAVICULACEAE										
....ENTOMONEIS	--	-	--	-	--	-	--	-	--	-
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	1100#	31	500#	27	--	-	--	-	--	-
..PENNALES										
...DIATOMACEAE										
....DIATOMA	--	-	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....FRAGILARIA	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	22	1	--	-	--	-	--	-	--	-
...NAVICULACEAE										
....NAVICULA	130	4	--	-	--	-	27#	100	--	-
...NITZSCHIACEAE										
....NITZSCHIA	22	1	140	8	--	-	--	-	--	-
...SURIRELLACEAE										
....SURIRELLA	260	8	--	-	--	-	--	-	--	-
...TABELLARIACEAE										
....TABELLARIA	--	-	--	-	--	-	--	-	--	-
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...CHROMULINACEAE										
....CHRYSOCOCCUS	87	3	--	-	--	-	--	-	--	-
...OCHROMONADACEAE										
....OCHROMONAS	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	--	-	--	-	30000#	31	--	-	--	-
..HORMOGONALES										
...OSCILLATORIACEAE										
....OSCILLATORIA	650#	19	--	-	--	-	--	-	--	-
....PHORMIMIDIUM	--	-	--	-	4500	5	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOMONODACEAE										
....CRYPTOMONAS	87	3	--	-	--	-	--	-	--	-
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	87	3	1100#	62	--	-	--	-	--	-
....TRACHELOMONAS	--	-	72	4	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..GYMNODINIALES										
...GYMNODINIACEAE										
....GYMNODINIUM	--	-	--	-	--	-	--	-	--	-
..PERIDINIALES										
...PERIDINIACEAE										
....PERIDINIUM	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

GREEN RIVER BASIN

09314500 PRICE RIVER AT WOODSIDE, UT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3800	4400	3000	7100	4150	5000	3800	2900	4900	7400	3650	3750
2	3700	4400	4000	6500	4000	5400	3900	2900	4900	6500	3900	2680
3	3600	4400	3800	6200	3840	5350	4000	3000	4950	1490	3900	3450
4	3200	4400	3200	5700	3780	4800	3900	2850	5200	1500	4100	5400
5	2400	4300	4800	5700	3700	4400	4100	2810	5150	2900	4380	2900
6	2600	4200	---	5400	3710	4200	4000	2800	5250	2080	4300	3050
7	3000	4300	---	5300	3940	4200	3900	2660	5500	2090	4400	3900
8	3500	4400	3200	---	4010	4350	3800	2700	5600	2360	4600	3400
9	4000	4600	2800	5600	3810	---	4000	2770	5650	3000	4400	3450
10	3900	4600	2900	5600	3940	4100	4100	2700	5700	3000	4600	2450
11	4000	4500	3300	5400	3950	4150	4300	2700	6050	3000	4600	2450
12	4200	4400	3200	5400	3920	4250	4400	2710	6050	3090	4700	2260
13	4200	4500	2050	---	3800	4650	4400	2640	6260	3340	1670	3850
14	4200	4600	2850	5700	3580	4400	4400	2580	5710	3600	1850	3650
15	3800	4800	2250	5600	3480	4350	4400	2000	---	3950	1840	2080
16	3600	4800	3000	5600	3710	4700	4200	2000	6600	3950	3400	2050
17	3850	4800	2900	5600	3500	4400	3900	3010	6010	4020	5250	3800
18	4100	4800	2900	5500	3600	5000	3700	3010	5450	4030	4400	2140
19	4000	4800	4500	5300	3500	5000	3800	3010	5400	4110	3150	2020
20	4000	4800	---	5150	4100	5200	4000	3000	5450	2340	1560	2800
21	3800	4600	3100	5050	4200	5350	4100	2890	5500	2280	1750	2150
22	3650	4400	5400	5000	3900	4900	4100	2810	5300	1700	1560	2150
23	3300	4600	4600	4900	3950	5000	4200	2810	5200	2700	3050	2150
24	3300	4400	4500	4900	4100	5200	4200	2790	5150	2720	2100	3980
25	3800	---	3500	4800	4300	5200	4200	2790	5650	3050	1880	4000
26	3600	4600	5000	4800	4750	5200	4400	2800	6570	1250	2900	4000
27	3600	4800	5200	4800	4650	4800	4400	2800	6510	2750	3450	4000
28	3500	4600	5500	4800	4120	4700	4600	2800	6770	2800	3550	4000
29	4000	4900	5800	4750	---	4650	4400	2750	6720	2820	3550	4000
30	4000	5200	6200	4750	---	4600	4600	2750	7370	3630	3500	4100
31	4000	---	6600	4750	---	4750	---	2900	---	3600	3790	---
MEAN	3680	4580	3930	5370	3930	4740	4140	2760	5740	3130	3410	3200

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.5	3.5	0.0	0.0	0.0	0.5	7.0	17.0	25.0	25.0	31.5	29.0
2	15.5	3.0	0.0	0.0	0.0	0.0	5.0	21.0	26.5	26.0	25.0	30.0
3	11.5	3.5	0.0	0.0	0.0	0.5	5.5	15.5	28.5	25.0	25.0	23.0
4	9.5	4.5	0.0	---	0.0	1.0	8.5	17.0	24.0	24.5	26.0	24.0
5	9.5	4.0	0.0	0.0	0.0	0.5	9.5	19.0	27.0	22.0	26.0	29.0
6	9.0	3.5	---	0.0	0.0	4.5	9.0	18.0	29.0	24.0	27.0	29.0
7	9.0	4.0	---	0.0	0.0	3.5	11.5	13.5	26.5	22.0	32.0	25.0
8	7.0	3.0	0.0	---	0.0	3.0	11.5	21.0	26.5	23.0	29.0	29.0
9	7.0	3.0	0.0	0.0	0.0	---	13.0	20.0	29.0	24.0	28.0	25.0
10	7.0	2.5	0.0	0.0	0.0	2.0	19.0	18.5	24.0	27.0	30.0	20.0
11	8.5	1.0	0.0	0.0	0.0	2.0	14.0	15.5	18.5	29.0	26.0	25.0
12	9.0	2.5	---	0.0	0.5	3.0	14.5	15.5	25.0	28.0	29.0	23.0
13	8.5	3.0	0.0	---	0.5	1.5	14.5	16.5	23.0	26.0	20.0	24.0
14	8.0	2.5	0.0	0.0	0.5	4.0	16.0	14.5	24.0	31.0	28.0	22.0
15	8.0	5.5	0.0	0.0	0.0	0.0	8.5	15.5	---	25.0	29.0	21.0
16	8.5	4.5	0.0	0.0	0.5	4.0	12.5	14.0	26.5	27.0	28.0	17.0
17	8.5	2.5	0.0	0.0	0.5	4.0	19.5	14.0	27.5	23.0	22.0	19.0
18	6.0	---	0.0	0.0	0.0	5.0	17.0	13.0	---	21.0	31.5	18.0
19	3.0	1.5	0.0	0.0	0.0	3.0	12.5	12.5	---	26.0	23.0	19.0
20	3.0	6.5	---	0.0	0.5	1.5	15.5	15.5	---	24.0	26.0	20.0
21	1.0	1.5	0.0	0.0	0.5	3.0	15.5	20.0	---	25.5	27.0	22.0
22	4.0	1.5	0.0	0.0	0.5	2.0	16.0	19.5	---	22.0	24.0	19.0
23	4.0	1.0	0.0	0.0	0.5	8.5	14.0	19.5	---	25.0	23.0	18.0
24	5.0	0.0	0.0	0.0	0.5	9.0	18.5	17.0	---	25.0	21.0	20.0
25	5.0	---	0.0	0.0	0.5	8.5	18.5	17.0	24.5	22.0	23.0	19.0
26	3.5	0.0	0.0	0.0	0.5	4.5	15.5	18.0	31.0	21.0	23.0	22.0
27	3.5	0.0	0.0	0.0	0.5	6.5	13.5	15.5	30.0	25.0	23.0	21.0
28	1.5	0.0	0.0	0.0	0.5	5.0	21.0	15.0	30.0	26.0	25.0	21.0
29	2.5	0.0	0.0	0.0	---	4.5	18.0	10.0	22.0	26.0	28.0	20.0
30	3.5	0.0	0.0	0.0	---	4.0	15.5	15.0	30.0	27.0	27.0	18.0
31	3.5	---	0.0	0.0	---	4.0	---	26.5	---	29.0	25.0	---
MEAN	6.5	2.5	0.0	0.0	0.5	3.5	13.5	17.0	26.5	25.0	26.0	22.5

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DIV. OF OIL, GAS & MINING

KAISER STEEL CORPORATION

SOUTH LEASE COAL PROPERTY

EMERY COUNTY, UTAH

REGIONAL WATER QUALITY

BASELINE DATA

GREEN RIVER AT GREEN RIVER, UTAH

SCALE: 1" : 2000'

DATE: OCT., 1981

PLATE VII-4A

09315000 GREEN RIVER AT GREEN RIVER, UT—Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.—Daily samples collected at bridge on U.S. Highways 50 and 6, in town of Green River, 0.7 mi (1.1 km) upstream from gaging station.

PERIOD OF RECORD.—August 1928 to current year.

PERIOD OF DAILY RECORDS.—
SPECIFIC CONDUCTANCE: October 1941 to current year, once daily.
WATER TEMPERATURES: May 1949 to September 1959, October 1964 to current year, once daily.
SUSPENDED-SEDIMENT DISCHARGE: May 1930 to current year, once daily.

REMARKS.—Unpublished daily records of specific conductance obtained before water year 1965 were included in the determination of extremes for period of daily record and are available in files of district office.

EXTREMES FOR PERIOD OF DAILY RECORD.—
SPECIFIC CONDUCTANCE: Maximum daily, 3,250 micromhos Dec. 1, 1967; minimum daily, 255 micromhos June 30, 1978.
WATER TEMPERATURES: Maximum, 30.0°C Aug. 13, 1958; minimum, 0.0°C on many days during winter period each year.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 66,000 mg/L July 11, 1936; minimum daily, 19 mg/L Sept. 30, 1974.
SEDIMENT LOADS: Maximum daily, 2,230,000 tons (2,023,000 tonnes) July 11, 1936; minimum daily, 54 tons (49 tonnes) Sept, 27, 1956.

EXTREMES FOR CURRENT YEAR.—
SPECIFIC CONDUCTANCE: Maximum daily, 1,310 micromhos Sept. 10; minimum daily, 320 micromhos June 17.
WATER TEMPERATURES: Maximum, 27.0°C July 17, 28; minimium, 0.0°C Nov. 24, 27, Dec. 19, Jan. 22.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 11,600 mg/L Sept. 11; minimum daily mean, 60 mg/L Oct. 20.
SEDIMENT LOADS: Maximum daily, 238,000 tons (216,000 tonnes) May 13; minimum daily, 321 tons (291 tonnes) Oct. 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE, WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, DIS-SOLVED (MG/L AS N)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV											
14...	1730	3080	880	8.5	6.0	5.5	47	7.8	.49	K10	39
DEC											
19...	0830	2900	860	8.4	-7.4	.0	17	--	.77	K4	10
JAN											
22...	1030	3400	790	8.3	2.0	.0	140	12.5	.69	K2	6300
FEB											
21...	1000	5760	860	8.1	5.5	1.5	800	13.4	.72	100	37000
MAR											
25...	1130	3350	980	8.0	7.0	6.5	390	9.6	1.7	34	970
APR											
22...	1000	6050	880	8.0	18.5	14.0	1600	8.8	1.7	--	--
MAY											
21...	1330	16700	540	8.2	27.0	15.5	670	10.1	1.2	--	--
JUN											
25...	1400	14100	330	7.6	32.0	20.0	110	8.1	.53	41	170
JUL											
30...	1430	2600	770	8.1	32.5	25.5	23	7.3	.65	32	170
AUG											
21...	1000	2270	760	8.2	16.0	18.0	18	7.4	.33	--	--
SEP											
17...	1400	2820	1130	8.1	23.5	18.5	700	8.3	1.2	K13	520

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	SODIUM+ POTAS-SIUM DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)
NOV											
14...	310	120	70	33	88	52	2.2	91	3.4	220	4
DEC											
19...	330	130	78	34	84	48	2.0	87	2.8	240	3
JAN											
22...	280	110	66	29	77	37	2.0	80	2.7	210	0
FEB											
21...	310	97	64	37	99	41	2.4	100	2.7	260	0
MAR											
25...	330	130	72	36	110	42	2.6	--	3.0	250	0
APR											
22...	310	150	70	33	94	39	2.3	--	3.2	--	--
MAY											
21...	170	0	40	17	38	32	1.3	--	1.8	240	0
JUN											
25...	120	13	29	12	21	27	.8	--	1.5	130	0
JUL											
30...	260	110	58	27	67	36	1.8	--	3.1	--	--
AUG											
21...	280	130	62	30	80	38	2.1	--	3.3	--	--
SEP											
17...	380	210	85	40	110	38	2.5	--	5.0	--	--

K Results based on colony count outside the acceptable range (non-ideal colony count).

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)
NOV										
14...	187	1.2	280	28	.3	5.9	632	622	.86	5260
DEC										
19...	202	1.8	280	27	.2	6.8	661	636	.90	5180
JAN										
22...	172	1.7	240	25	.3	6.8	583	552	.79	5350
FEB										
21...	213	3.3	310	25	.4	8.0	629	677	.86	9780
MAR										
25...	205	4.0	320	38	.4	8.7	710	713	.97	6420
APR										
22...	160	--	290	25	.4	6.2	662	620	.90	10600
MAY										
21...	197	2.4	110	10	.3	11	312	348	.42	14100
JUN										
25...	107	5.2	70	7.4	.2	8.7	207	214	.28	7880
JUL										
30...	150	--	220	26	.8	7.0	513	799	.70	3600
AUG										
21...	150	--	250	30	.3	4.7	515	551	.70	3160
SEP										
17...	170	--	410	36	.4	7.7	878	798	1.19	6690

DATE	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS NH4)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)
NOV								
14...	.24	.22	.030	.020	.04	.03	.47	.25
DEC								
19...	.30	.34	.000	.010	.00	.01	.44	.42
JAN								
22...	.40	.38	.020	.000	.02	.00	.50	.31
FEB								
21...	.47	.45	.080	.020	.10	.03	1.9	.25
MAR								
25...	.34	.38	.080	.020	.10	.03	1.2	1.3
APR								
22...	.41	.35	.190	.010	.23	.01	3.6	1.3
MAY								
21...	.28	.28	.010	.010	.01	.01	2.2	.87
JUN								
25...	.05	.01	.040	.010	.05	.01	.61	.51
JUL								
30...	.00	.00	.000	.010	.00	.01	.97	.64
AUG								
21...	.00	.00	.040	.000	.05	.00	1.1	.33
SEP								
17...	.27	.29	.030	.020	.04	.03	2.8	.92

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, TOTAL (MG/L AS PO4)	PHOSPHORUS, DISSOLVED (MG/L AS P)
NOV								
14...	.50	.23	.27	.74	3.3	.070	.21	.020
DEC								
19...	.44	.01	.43	.74	3.3	.030	.09	.010
JAN								
22...	.52	.21	.31	.92	4.1	.070	.21	.010
FEB								
21...	2.0	1.7	.27	2.5	11	.000	.00	.020
MAR								
25...	1.3	.00	1.3	1.6	7.3	.440	1.4	.040
APR								
22...	3.8	2.5	1.3	4.2	19	2.900	8.9	.020
MAY								
21...	2.2	1.3	.88	2.5	11	1.900	5.8	.020
JUN								
25...	.65	.13	.52	.70	3.1	.530	1.6	.020
JUL								
30...	.97	.32	.65	.97	4.3	.080	.25	.030
AUG								
21...	1.1	.77	.33	1.1	4.9	.100	.31	.070
SEP								
17...	2.8	1.9	.94	3.1	14	.860	2.6	.040

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
NOV											
14...	1730	1	0	3	200	100	90	0	0	<1	8
FEB											
21...	1000	6	3	3	400	300	100	2	2	0	20
MAY											
21...	1330	10	8	2	700	500	200	1	--	<1	30
AUG											
21...	1000	3	2	1	100	0	100	0	--	<1	0

DATE	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)
NOV										
14...	8	0	0	<3	5	5	0	2000	2000	<10
FEB										
21...	20	8	8	0	35	33	2	16000	16000	40
MAY										
21...	30	18	--	<3	33	24	9	39000	39000	10
AUG										
21...	0	1	--	<3	5	3	2	1300	--	<10

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)
NOV										
14...	5	5	0	50	50	4	.0	.0	.0	5
FEB										
21...	26	18	8	470	460	10	.1	.1	.0	28
MAY										
21...	30	29	1	1100	1100	1	.2	.2	.0	43
AUG										
21...	7	7	0	50	50	3	.0	.0	.0	5

DATE	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV										
14...	3	2	1	0	1	0	0	30	20	8
FEB										
21...	25	3	3	1	2	0	0	100	0	150
MAY										
21...	38	5	2	1	1	0	0	170	70	100
AUG										
21...	5	0	1	0	1	0	0	30	20	10

DATE	TIME	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)
NOV		
14...	1730	0
DEC		
19...	0830	0
FEB		
21...	1000	0
MAY		
21...	1330	0
JUN		
25...	1400	0
AUG		
21...	1000	0
SEP		
17...	1400	0

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
MAY									
21...	1330	<5.0	89	3.1	58	3.0	55	.14	2.5
AUG									
21...	1000	<9.0	3.1	4.5	2.8	4.3	2.6	.14	4.3

DATE	TIME	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED (MG/L AS C)
NOV				
14...	1730	--	11	.3
DEC				
19...	0830	4.8	--	--
JAN				
22...	1030	9.2	--	--
FEB				
21...	1000	--	6.0	--
MAR				
25...	1130	18	--	--
APR				
22...	1000	26	--	--
MAY				
21...	1330	--	8.2	.8
JUN				
25...	1400	16	--	--
AUG				
21...	1000	--	5.7	.7
SEP				
17...	1400	15	--	--

DATE	TIME	PCB TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
NOV											
14...	1730	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB											
21...	1230	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL (UG/L)	DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ETHION, TOTAL (UG/L)	ETHION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR, TOTAL (UG/L)
NOV											
14...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB											
21...	ND	--	ND	--	ND	--	ND	--	ND	--	ND

DATE	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	MALA-THION, TOTAL (UG/L)	MALA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)	METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRI-THION, TOTAL (UG/L)
NOV											
14...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB											
21...	--	ND	--	ND	--	ND	--	ND	ND	--	ND

ND Material specifically analyzed for but not detected.

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	METHYL TRI-THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA-THION, TOTAL (UG/L)	PARA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOX-APHENE, TOTAL (UG/L)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL TRI-THION (UG/L)	TRI-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
NOV										
14...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB										
21...	--	ND	--	ND	--	ND	--	--	--	--

DATE	TIME	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS)
NOV						
14...	1730	111	104	22.5	.850	311
APR						
22...	1000	6.54	6.22	.090	.000	3556
AUG						
21...	1000	1.34	1.18	.000	.000	--

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE	NOV 14,79	MAR 25,80	MAY 21,80	JUN 25,80
TIME	1730	1130	1330	1400
TOTAL CELLS/ML	460	230	1000	1900
DIVERSITY: DIVISION	0.3	0.5	0.8	0.8
.CLASS	0.3	0.5	0.8	0.8
..ORDER	0.5	1.3	0.8	1.6
...FAMILY	2.9	2.2	1.4	2.1
....GENUS	3.3	2.2	1.4	2.3

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...MICRACTINIACEAE								
....GOLENKINIA	--	-	--	-	--	-	57	3
....MICRACTINIUM	--	-	--	-	--	-	57	3
...OOCYSTACEAE								
....ANKISTRODESMUS	10	2	29	13	--	-	29	2
....CHLORELLA	--	-	--	-	--	-	14	1
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-
....TREUBARIA	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....ACTINASTRUM	--	-	--	-	--	-	110	6
....SCENEDESMUS	10	2	--	-	--	-	110	6
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	5	1	--	-	--	-	86	5
..ZYGNEMATALES								
...DESMIDIACEAE								
....COSMARIUM	--	-	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...CHAETOCERACEAE								
....CHAETOCEROS	--	-	--	-	--	-	--	-
...COSCINODISCACEAE								
....CYCLOTELLA	10	2	57#	25	--	-	1000#	55
....MELOSIRA	--	-	--	-	--	-	--	-
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	10	2	--	-	--	-	--	-
....COCCONEIS	10	2	--	-	--	-	--	-
....RHOICOSPHENIA	15	3	--	-	--	-	--	-
...CYMBELLACEAE								
....CYMBELLA	15	3	--	-	--	-	--	-
....EPITHEMIA	15	3	--	-	27	3	--	-
...DIATOMACEAE								
....DIATOMA	30	7	--	-	14	1	--	-
....OPEPHORA	--	-	--	-	14	1	--	-

See footnotes at end of table.

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	NOV 14,79 1730		MAR 25,80 1130		MAY 21,80 1330		JUN 25,80 1400	
TOTAL CELLS/ML	460		230		1000		1900	
DIVERSITY: DIVISION	0.3		0.5		0.8		0.8	
.CLASS	0.3		0.5		0.8		0.8	
..ORDER	0.5		1.3		0.8		1.6	
...FAMILY	2.9		2.2		1.4		2.1	
....GENUS	3.3		2.2		1.4		2.3	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
...FRAGILARIACEAE								
....ASTERIONELLA	--	-	--	-	--	-	72	4
....FRAGILARIA	10	2	--	-	--	-	--	-
....SYNEDRA	15	3	29	13	--	-	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	10	2	--	-	14	1	--	-
...NAVICULACEAE								
....NAVICULA	81#	18	29	13	110	11	--	-
....PLAGIOTROPIS	5	1	--	-	--	-	--	-
....PLEUROSIGMA	10	2	--	-	--	-	--	-
...NITZSCHIACEAE								
....NITZSCHIA	170#	36	86#	38	27	3	300#	16
...SURIRELLACEAE								
....CYMATOPLEURA	--	-	--	-	--	-	14	1
....SURIRELLA	5	1	--	-	55	5	--	-
...TABELLARIACEAE								
....TABELLARIA	25	5	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	--	-	--	-	--	-
....ANACYSTIS	--	-	--	-	--	-	--	-
..HORMOGONALES								
...OSCILLATORIACEAE								
....LYNGBYA	--	-	--	-	--	-	--	-
....OSCILLATORIA	--	-	--	-	740#	74	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	--	-	--	-

DATE TIME	JUL 30,80 1430		AUG 21,80 1000		SEP 17,80 1400	
TOTAL CELLS/ML	3600		10000		4600	
DIVERSITY: DIVISION	1.2		1.5		1.7	
.CLASS	1.2		1.5		1.7	
..ORDER	1.9		2.2		2.0	
...FAMILY	2.1		2.5		2.6	
....GENUS	2.2		3.1		2.7	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...MICRACTINIACEAE						
....GOLENKINIA	50	1	--	-	--	-
....MICRACTINIUM	--	-	--	-	300	7
...OOCYSTACEAE						
....ANKISTRODESMUS	50	1	1900#	19	75	2
....CHLORELLA	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	840	8	--	-
....KIRCHNERIELLA	--	-	350	3	--	-
....OOCYSTIS	700#	19	--	-	--	-
....SELENASTRUM	25	1	--	-	--	-
....TREUBARIA	--	-	--	-	75	2
...SCENEDESMACEAE						
....ACTINASTRUM	--	-	--	-	600	13
....SCENEDESMUS	100	3	420	4	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	100	3	210	2	220	5
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	75	2	--	-	--	-

See footnotes at end of table.

GREEN RIVER BASIN

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	JUL 30,80 1430		AUG 21,80 1000		SEP 17,80 1400	
TOTAL CELLS/ML	3600		10000		4600	
DIVERSITY: DIVISION	1.2		1.5		1.7	
.CLASS	1.2		1.5		1.7	
..ORDER	1.9		2.2		2.0	
...FAMILY	2.1		2.5		2.6	
....GENUS	2.2		3.1		2.7	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...CHAETOCERACEAE						
....CHAETOCEROS	--	-	70	1	--	-
...COSCINODISCACEAE						
....CYCLOTELLA	380	10	2400#	23	220	5
....MELOSIRA	--	-	350	3	--	-
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	--	-	--	-
....COCCONEIS	--	-	--	-	--	-
....RHOICOSPHENIA	--	-	--	-	--	-
...CYMBELLACEAE						
....CYMBELLA	--	-	--	-	75	2
....EPITHEMIA	--	-	--	-	--	-
...DIATOMACEAE						
....DIATOMA	--	-	--	-	--	-
....OPEPHORA	--	-	--	-	--	-
...FRAGILARIACEAE						
....ASTERIONELLA	--	-	--	-	--	-
....FRAGILARIA	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	--	-
...GOMPHONEMATACEAE						
....GOMPHONEMA	--	-	--	-	--	-
...NAVICULACEAE						
....NAVICULA	--	-	--	-	300	7
....PLAGIOTROPIS	--	-	--	-	--	-
....PLEUROSIGMA	--	-	--	-	--	-
...NITZSCHIACEAE						
....NITZSCHIA	1900#	51	1500#	15	750#	16
...SURIRELLACEAE						
....CYMATOPLEURA	--	-	--	-	--	-
....SURIRELLA	--	-	--	-	--	-
...TABELLARIACEAE						
....TABELLARIA	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	840	8	--	-
....ANACYSTIS	280	8	420	4	--	-
..HORMOGONALES						
...OSCILLATORIACEAE						
....LYNGBYA	--	-	840	8	--	-
....OSCILLATORIA	--	-	--	-	1900#	41
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	--	-	75	2

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

09315000 GREEN RIVER AT GREEN RIVER, UT—Continued

WATER-QUALITY RECORDS

LOCATION.—Daily samples collected at bridge on U.S. Highways 50 and 6, in town of Green River, 0.7 mi (1.1 km) upstream from gaging station.

PERIOD OF RECORD.—August 1928 to current year.

SPECIFIC CONDUCTANCE: October 1941 to current year, once daily.
WATER TEMPERATURES: May 1949 to September 1959, October 1964 to current year, once daily.
SUSPENDED-SEDIMENT DISCHARGE:—May 1930 to current year, once daily.

REMARKS.—Unpublished daily records of specific conductance obtained before water year 1965 were included in the determination of extremes for period of daily record and are available in files of district office.

EXTREMES FOR PERIOD OF DAILY RECORD.—

SPECIFIC CONDUCTANCE: Maximum daily, 3,250 micromhos Dec. 1, 1967; minimum daily, 255 micromhos June 30, 1978.
WATER TEMPERATURES (water years 1949-59, 1965-76): Maximum, 30.0°C Aug. 13, 1958; minimum, 0.0°C on many days during winter period each year.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 66,000 mg/L July 11, 1936; minimum daily, 19 mg/L Sept. 30, 1974.
SEDIMENT LOADS: Maximum daily, 2,230,000 tons(2,023,000 tonnes) July 11, 1936; minimum daily, 54 tons (49 tonnes) Sept, 27, 1956.

EXTREMES FOR CURRENT YEAR.—

SPECIFIC CONDUCTANCE: Maximum daily, 1,240 micromhos Dec. 10, 11; minimum daily, 300 micromhos June 20,22.
WATER TEMPERATURES: Maximum, 28.0°C Aug. 5; minimium, 0.0°C many days during Dec., Jan., Feb.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 6,250 mg/L Nov. 12; minimum daily mean, 65 mg/L Oct. 20, 25.
SEDIMENT LOADS: Maximum daily, 239,000 tons (217,000 tonnes) May 30; minimum daily, 340 tons (308 tonnes) Oct. 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT											
25...	1610	1960	940	8.4	13.0	10.1	K4	410	320	130	71
DEC											
12...	1500	3590	1220	8.2	.0	12.5	<1	K32	390	190	87
JAN											
31...	1700	2500	880	8.2	.0	12.3	<1	K8	300	130	70
FEB											
28...	1315	3100	780	8.0	.5	18.8	K19000	K9200	300	79	72
APR											
04...	1730	7860	1120	8.1	8.5	4.0	K100	940	360	89	79
MAY											
02...	1700	10200	600	8.1	15.0	8.5	K37	130	220	40	52
22...	1900	19900	400	8.0	19.0	7.2	30	580	150	0	35
JUL											
24...	1400	3900	740	8.2	25.5	--	50	150	240	60	58
SEP											
06...	1430	2530	810	8.5	24.0	--	29	49	260	54	57
19...	1115	2300	895	8.1	18.5	9.1	86	--	290	77	63

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	SODIUM+ POTAS-SIUM DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT											
25...	34	94	39	2.3	--	3.1	220	7	192	1.5	300
DEC											
12...	42	110	38	2.4	--	3.7	--	--	200	--	390
JAN											
31...	31	78	36	2.0	--	3.0	--	--	170	--	250
FEB											
28...	30	71	33	1.8	--	3.0	270	0	221	4.3	250
APR											
04...	40	110	39	2.5	--	4.1	330	0	271	4.2	390
MAY											
02...	22	45	30	1.3	--	2.5	220	0	180	2.8	150
22...	15	29	29	1.0	31	2.0	290	0	110	4.6	86
JUL											
24...	24	59	34	1.6	62	2.7	220	0	180	2.2	190
SEP											
06...	28	77	53	2.1	81	3.5	210	20	206	1.3	250
19...	33	92	55	2.3	95	2.9	260	0	213	3.3	270

K Results based on colony count outside the acceptable range (non-ideal colony count).

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)
OCT											
25...	41	.3	4.1	663	663	.90	3510	.02	--	.01	.69
DEC											
12...	39	.3	6.1	852	799	1.16	8260	.55	--	.03	.46
JAN											
31...	24	.3	6.4	590	565	.80	3980	.53	--	.22	.36
FEB											
28...	25	.3	6.0	547	590	.74	4580	.53	--	.28	.70
APR											
04...	35	.4	8.7	814	830	1.11	3810	.70	--	.04	1.8
MAY											
02...	14	.3	8.6	374	403	.51	10300	.57	--	.02	1.3
22...	8.1	.3	9.0	273	327	.37	14700	.39	--	.06	3.7
JUL											
24...	21	.3	7.3	471	471	.64	4960	.10	--	.02	.47
SEP											
06...	29	.4	6.7	554	575	.75	3780	.03	.04	.01	.51
19...	28	.3	5.2	623	623	.85	3870	.01	.01	.00	.67

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	BORON, DISSOLVED (UG/L AS B)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)
OCT										
25...	.70	.43	.27	.72	.060	.020	220	--	4.7	1.0
DEC										
12...	.49	.23	.26	1.0	.130	.030	230	7.8	--	--
JAN										
31...	.58	.11	.47	1.1	.150	.070	130	--	4.7	1.4
FEB										
28...	.98	.31	.67	1.5	.070	.070	130	21	--	--
APR										
04...	1.8	1.3	.52	2.5	.420	.030	240	16	--	--
MAY										
02...	1.3	.80	.50	1.9	.580	.040	130	--	8.1	--
22...	3.8	3.4	.41	4.2	1.40	.020	80	33	--	--
JUL										
24...	.49	.07	.42	.59	.170	.060	150	--	4.9	--
SEP										
06...	.52	.32	.20	.55	.100	.000	210	5.1	--	--
19...	.67	.16	.51	.68	.040	.010	240	5.7	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)
OCT										
25...	1610	1	1	100	0	100	1	1	0	0
JAN										
31...	1700	2	1	0	0	80	1	0	1	10
MAY										
02...	1700	5	2	300	200	100	2	2	0	20
JUL										
24...	1400	2	2	100	20	80	3	0	4	0

DATE	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)
OCT										
25...	0	0	0	0	0	8	5	3	830	830
JAN										
31...	10	0	2	0	3	6	4	2	1800	1800
MAY										
02...	20	0	10	10	0	15	13	2	19000	19000
JUL										
24...	0	0	3	0	3	5	3	2	2700	2700

GREEN RIVER BASIN

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)
OCT										
25...	0	69	67	2	50	50	0	.0	.0	.0
JAN										
31...	10	15	0	62	40	30	8	.0	.0	.0
MAY										
02...	120	23	21	2	500	500	0	.1	.0	.2
JUL										
24...	30	57	0	70	90	90	4	.0	.0	.2

DATE	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT									
25...	1	0	1	0	0	0	20	20	0
JAN									
31...	2	0	2	1	1	0	30	0	30
MAY									
02...	1	0	2	0	0	0	90	80	10
JUL									
24...	2	1	1	0	0	0	30	10	20

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)
DEC									
12...	1500	ND	ND	ND	ND	ND	ND	ND	ND
FEB									
28...	1315	ND	ND	ND	ND	ND	ND	ND	ND
MAY									
22...	1900	ND	ND	ND	ND	ND	ND	ND	ND
SEP									
06...	1430	ND	ND	ND	ND	ND	ND	ND	ND

DATE	ENDRIN, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)
DEC									
12...	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB									
28...	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY									
22...	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEP									
06...	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	TIME	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
DEC									
12...	1500	ND	ND	ND	ND	ND	ND	ND	ND

DATE	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	MALA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TRI-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
DEC									
12...	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND Material specifically analyzed for but not detected.

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)
SEP								
19...	1115	<12	2.1	5.3	2.0	4.9	2.0	.10

DATE	TIME	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS)
OCT						
25...	1610	45.7	42.8	7.75	.000	--
MAY						
02...	1700	1.97	1.73	.040	.000	6000
SEP						
06...	1430	2.36	2.16	24.7	.000	8.10

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	930	960	890	840	800	1080	560	335	350	720	---
2	890	---	930	900	860	810	1130	570	325	375	710	790
3	880	1160	940	890	860	970	1090	590	335	375	720	---
4	870	1130	930	890	740	890	1150	---	350	400	720	820
5	860	---	940	890	870	960	1060	560	370	440	730	820
6	860	930	1010	890	860	920	1130	570	---	435	740	820
7	---	960	1060	910	860	890	1070	540	385	380	---	830
8	890	980	---	910	860	900	1100	---	---	405	750	850
9	870	1000	930	890	860	910	1030	550	355	415	780	840
10	870	1000	1240	890	840	---	1060	550	340	420	800	850
11	870	---	1240	880	840	840	1030	500	320	480	820	840
12	890	1010	1180	860	840	850	990	510	315	480	---	860
13	890	1000	1180	850	830	900	---	500	340	500	770	860
14	910	940	1090	870	820	940	980	530	355	480	780	860
15	910	1010	1080	870	820	1060	940	580	380	560	1150	900
16	920	---	1120	830	---	1030	900	600	380	510	880	---
17	---	1030	1060	830	810	1040	900	600	345	530	880	880
18	890	1010	1050	830	810	1020	920	600	325	540	---	890
19	---	970	1000	830	810	1000	910	590	310	590	---	890
20	890	970	980	830	810	980	900	510	300	600	980	900
21	---	970	980	830	810	1020	880	455	---	630	940	910
22	920	960	950	840	820	970	880	415	300	600	920	---
23	---	970	---	830	820	970	740	---	---	690	930	930
24	940	980	950	830	840	910	670	385	355	740	930	940
25	940	990	920	830	820	960	---	370	360	---	900	---
26	990	960	900	840	820	980	---	---	365	700	890	940
27	980	920	920	840	820	1010	630	370	400	700	850	930
28	1040	---	900	830	780	1000	650	355	385	---	1010	940
29	940	940	880	860	---	1150	620	370	370	690	840	930
30	940	950	820	880	---	980	590	355	345	710	820	930
31	930	---	890	850	---	1020	---	330	---	---	850	---
MEAN	---	---	1000	861	829	956	927	497	348	526	845	878

GREEN RIVER BASIN

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	11.0	2.0	.0	.0	2.0	9.0	15.0	17.0	---	25.0	---
2	18.0	---	2.0	.0	.0	2.5	8.0	15.0	17.0	---	24.0	21.0
3	18.0	13.0	2.0	.0	.0	2.0	7.0	15.0	18.0	---	24.0	---
4	17.0	12.0	2.0	.0	.0	1.0	9.0	---	19.0	---	25.0	21.0
5	17.0	---	1.5	.0	.0	1.0	9.0	18.0	20.0	---	28.0	21.0
6	17.0	12.0	1.0	.0	.0	1.0	12.0	16.0	---	---	27.0	22.0
7	---	11.0	.0	.0	.0	2.0	11.5	13.5	20.0	---	---	25.0
8	17.0	11.0	---	.0	.0	2.0	13.0	---	---	---	26.0	25.0
9	16.0	11.0	.0	.0	.0	2.0	12.0	11.0	20.0	---	26.0	25.0
10	16.0	9.0	.0	.0	.0	---	10.0	12.0	20.0	---	26.0	24.0
11	18.0	---	.0	.0	.0	2.0	10.0	12.0	21.0	---	26.0	22.0
12	17.0	5.0	.0	.0	.0	2.0	10.0	13.0	21.0	---	---	23.0
13	16.0	4.0	.0	.0	1.0	5.5	---	14.0	21.0	---	24.0	21.0
14	15.5	4.0	.0	.0	2.0	6.0	12.0	15.0	22.0	---	24.0	19.0
15	19.5	4.0	.0	.0	2.0	4.0	13.0	18.0	---	---	21.0	18.0
16	16.5	---	.0	.0	---	3.5	13.5	19.0	---	---	20.0	---
17	---	4.0	.0	.0	2.0	5.0	16.0	20.5	---	---	22.0	19.0
18	15.0	4.0	.0	1.0	2.0	4.0	14.0	21.0	---	---	---	20.0
19	---	4.0	.0	2.0	1.0	4.0	15.0	21.0	---	---	---	20.0
20	13.5	4.0	.0	1.0	2.0	3.5	15.0	19.5	---	---	22.0	20.0
21	---	3.0	.0	1.0	2.0	3.0	14.0	22.0	---	---	22.0	21.0
22	13.5	3.0	.0	.0	2.0	5.0	14.5	20.0	---	---	22.5	---
23	13.5	3.0	.0	.0	5.0	5.0	14.5	---	---	---	23.0	20.0
24	13.0	2.0	.0	.0	2.0	8.0	13.0	19.0	---	25.5	23.0	18.0
25	13.0	2.5	.0	.0	2.0	8.5	---	19.0	---	---	22.0	---
26	11.5	2.0	.0	.0	1.0	10.5	---	---	---	---	22.0	19.0
27	11.0	2.0	.0	.0	1.0	8.5	15.0	19.0	---	---	24.0	20.0
28	11.0	---	.0	.0	.5	9.5	15.0	19.5	---	---	22.0	21.0
29	12.0	2.0	.0	.0	---	8.0	17.0	18.0	---	---	21.0	18.0
30	11.0	2.0	.0	.0	---	9.0	17.0	17.0	---	---	21.0	18.0
31	12.0	---	.0	.0	---	8.0	---	17.0	---	---	21.0	---
MEAN	15.0	6.0	.5	.0	1.0	4.5	12.5	17.0	19.5	25.5	23.5	21.0

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	200	1370	100	661	300	2830	200	1240	100	702	100	891
2	250	1920	250	1750	300	3010	200	1130	100	810	100	945
3	260	1920	3200	24900	300	2880	200	1350	100	756	100	918
4	230	1710	5050	43400	300	3010	200	1400	100	756	100	837
5	180	1180	4100	34300	300	2760	200	1570	100	648	100	864
6	150	895	1000	8260	300	2800	200	1620	100	729	100	918
7	130	923	350	2440	300	2630	200	1510	100	756	100	945
8	125	915	200	1290	300	2190	200	1400	100	756	100	945
9	120	868	100	616	300	1410	200	1400	100	783	100	918
10	110	742	90	539	300	1350	200	1400	100	756	150	1300
11	100	610	1700	12900	250	1450	200	1510	100	783	500	4590
12	85	475	6250	70900	250	1980	200	1620	100	810	800	8210
13	80	413	5000	45000	250	2230	200	1730	100	864	950	12400
14	70	361	1300	8880	250	2300	200	1570	100	918	1050	14700
15	75	387	500	3590	250	2230	200	1730	100	891	1800	22100
16	80	443	300	2340	250	2230	200	1840	100	837	1650	18700
17	75	462	200	1550	250	2160	200	1840	100	837	900	10300
18	75	462	200	1810	250	2230	200	2000	100	810	1100	13600
19	70	391	300	2980	250	2250	200	1940	100	810	1300	18300
20	65	340	350	3580	250	2160	200	1780	100	837	1350	20900
21	110	594	300	2960	250	1890	200	1670	100	918	1650	31000
22	190	1100	200	1810	250	1620	200	1890	100	837	2450	58900
23	170	909	150	1130	250	1550	200	1780	100	864	2950	72700
24	90	486	150	1130	250	1620	200	1670	100	837	2900	70900
25	65	347	200	1920	250	1690	200	1840	100	864	2800	61400
26	180	938	250	2540	250	1550	200	1840	100	810	2000	38700
27	210	1290	300	3180	250	1490	200	1570	100	891	1350	23600
28	380	2970	300	2920	250	1620	200	1570	100	837	1100	17700
29	225	1540	300	2520	250	1890	200	1570	---	---	1200	25500
30	130	755	300	2640	250	1760	200	1400	---	---	950	31500
31	100	645	---	---	250	1690	200	1350	---	---	1250	44200
TOTAL	---	28361	---	294436	---	64460	---	49730	---	22707	---	629381

09315000 GREEN RIVER AT GREEN RIVER, UT—Continued

WATER-QUALITY RECORDS

LOCATION.—Daily samples collected at bridge on U.S. Highways 50 and 6, in town of Green River, 0.7 mi (1.1 km) upstream from gaging station.

PERIOD OF RECORD.—August 1928 to current year.

PERIOD OF DAILY RECORD.—
SPECIFIC CONDUCTANCE: October 1941 to current year.
WATER TEMPERATURES: May 1949 to September 1959, October 1964 to current year.
SUSPENDED-SEDIMENT DISCHARGE: May 1930 to current year.

REMARKS.—Unpublished daily records of specific conductance obtained before water year 1965 were included in the determination of extremes for period of daily record and are available in files of district office.

EXTREMES FOR PERIOD OF DAILY RECORD.—
SPECIFIC CONDUCTANCE: Maximum daily, 3,250 micromhos Dec. 1, 1967; minimum daily, 255 micromhos June 30, 1978.
WATER TEMPERATURES (water years 1949-59, 1965-76): Maximum, 30.0°C Aug. 13, 1958; minimum, 0.0°C on many days during winter period each year.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 66,000 mg/L July 11, 1936; minimum daily, 19 mg/L Sept. 30, 1974.
SEDIMENT LOADS: Maximum daily, 2,230,000 tons (2,023,000 tonnes) July 11, 1936; minimum daily, 54 tons (49 tonnes) Sept. 27, 1956.

EXTREMES FOR CURRENT YEAR.—
SPECIFIC CONDUCTANCE: Maximum daily, 1,270 micromhos Oct. 7; minimum daily, 255 micromhos June 30.
WATER TEMPERATURES: Maximum, 29.0°C Aug. 4, 9; minimum, 0.0°C several days during Dec., Jan.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 13,400 mg/L Oct. 7; minimum daily mean, 35 mg/L Feb. 23.
SEDIMENT LOADS: Maximum daily, 235,000 tons (213,000 tonnes) May 20; minimum daily, 184 tons (167 tonnes) Feb. 23.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT										
20...	1430	1800	950	8.5	14.5	8.9	170	230	320	100
NOV										
14...	1530	1940	980	8.4	7.0	10.4	520	K5600	350	120
DEC										
12...	1530	1760	930	8.5	3.0	12.2	4	170	350	140
JAN										
16...	1600	2280	890	8.4	.0	12.6	K17	70	330	120
FEB										
21...	1545	1860	960	8.4	3.5	13.8	<1	92	350	150
MAR										
21...	1400	2780	1070	8.4	10.5	9.6	K3	530	350	140
APR										
18...	1500	7080	620	8.1	14.0	8.8	K14	240	230	54
MAY										
23...	1530	11800	300	7.9	15.5	8.4	160	400	130	0
JUL										
06...	1830	11500	350	8.0	22.0	7.0	--	--	130	34
AUG										
09...	1900	2240	630	8.4	28.5	7.0	52	K590	250	110
SEP										
26...	1540	2860	950	8.2	19.5	8.3	K180	850	330	140

K Results based on colony count outside the acceptable range (non-ideal colony count).

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT									
20...	73	34	88	2.1	3.1	240	13	270	36
NOV									
14...	81	36	100	2.3	2.9	270	6	310	35
DEC									
12...	77	38	97	2.3	--	250	5	310	36
JAN									
16...	76	33	83	2.0	2.3	240	3	250	36
FEB									
21...	79	36	86	2.0	2.7	240	2	260	32
MAR									
21...	77	39	120	2.8	3.5	250	3	350	38
APR									
18...	54	24	52	1.5	2.2	220	0	160	16
MAY									
23...	33	12	23	.9	1.0	190	0	69	7.1
JUL									
06...	33	12	24	.9	1.6	--	--	80	8.2
AUG									
09...	59	25	62	1.7	2.8	--	--	210	23
SEP									
26...	79	33	97	2.3	3.4	--	--	320	36

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)
OCT									
20...	.4	5.4	630	641	.86	3060	.08	--	--
NOV									
14...	.4	6.2	701	711	.95	3670	.46	--	--
DEC									
12...	.4	6.5	680	693	.92	3230	.43	--	--
JAN									
16...	.3	7.9	619	610	.84	3810	.34	--	--
FEB									
21...	.3	6.4	640	623	.87	3210	.39	.34	.73
MAR									
21...	.4	6.8	756	761	1.03	5680	.51	1.3	1.8
APR									
18...	.3	9.0	411	427	.56	7860	.71	1.8	2.5
MAY									
23...	.2	9.3	212	248	.29	6750	.50	--	--
JUL									
06...	.2	8.3	218	226	.30	6770	.18	.55	.73
AUG									
09...	.3	5.6	459	472	.62	2780	.03	.38	.41
SEP									
26...	.4	5.8	683	677	.93	5270	.39	2.1	2.5

GREEN RIVER BASIN

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT									
20...	.17	.00	--	--	--	--	--	--	--
NOV									
14...	.50	.02	9.4	.394	.315	.360	.000	782	99
DEC									
12...	.09	.00	4.8	--	--	--	--	138	99
JAN									
16...	.10	.02	--	--	--	--	--	130	91
FEB									
21...	.03	.01	5.9	--	--	--	--	38	97
MAR									
21...	.44	.02	8.3	--	--	--	--	609	99
APR									
18...	.95	.01	--	.472	.236	.000	.000	1600	79
MAY									
23...	1.1	.02	32	--	--	--	--	--	--
JUL									
06...	.36	.03	11	--	--	--	--	975	51
AUG									
09...	.05	.01	--	--	--	--	--	73	94
SEP									
26...	.58	.02	11	--	--	--	--	992	99

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)
OCT												
20...	1430	2	1	10	2	--	10	50	0	10	2	4100
JAN												
16...	1600	2	1	1	1	10	0	1	0	13	2	1800
APR												
18...	1500	7	5	2	0	20	0	8	0	39	4	21000
AUG												
09...	1900	2	2	3	2	10	0	2	0	13	2	1200

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT											
20...	20	100	14	100	4	.0	.0	--	5	50	10
JAN											
16...	10	5	2	50	10	.0	.0	2	2	30	20
APR											
18...	40	28	4	630	0	.0	.0	1	0	100	70
AUG											
09...	10	--	15	60	0	.0	.0	1	1	20	10

DATE	TIME	ALDRIN, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)
NOV										
14...	1530	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR										
21...	1400	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY										
23...	1530	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG										
09...	1900	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND Material specifically analyzed for but not detected.

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CHLOR-DANE, TOTAL (UG/L)	PCB, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	2,4-D, TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
NOV 14...	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR 21...	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY 23...	ND	ND	ND	ND	ND	ND	--	--	--
AUG 09...	ND	ND	ND	ND	ND	ND	--	--	--

DATE	TIME	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
NOV 14...	1530	ND	ND	ND	ND	ND	ND	ND
MAY 28...	1530	ND	ND	ND	ND	ND	ND	ND

DATE	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	2,4-D, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	2,4,5-T TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	SILVEX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
NOV 14...	ND	ND	ND	ND	ND	ND	ND
MAY 28...	ND	ND	ND	ND	--	--	--

ND Material specifically analyzed for but not detected.

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO AUGUST 1978

DATE	NOV 14,77	MAR 21,78	MAY 23,78	JUL 6,78	AUG 9,78
TIME	1530	1400	1530	1830	1900
TOTAL CELLS/ML	460	740	1300	690	5200
DIVERSITY: DIVISION	0.8	0.4	0.2	0.9	0.1
.CLASS	0.8	0.4	0.2	0.9	0.1
..ORDER	1.5	0.4	0.9	1.3	0.3
...FAMILY	2.0	2.4	2.9	1.6	0.7
....GENUS	2.0	3.1	3.2	1.6	1.5

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...OOCYSTACEAE										
....ANKISTRODESMUS										
....CHODATELLA	--	-	57	8	51	4	--	-	3700#	72
....KIRCHNERIELLA	--	-	--	-	--	-	--	-	130	3
....OOCYSTIS	--	-	--	-	--	-	--	-	88	2
...SCENEDESMACEAE	--	-	--	-	--	-	--	-	530	10
....SCENEDESMUS										
..ZYGNEMATALES	--	-	--	-	--	-	450#	65	440	8
...DESMIDIACEAE										
....CLOSTERIUM	120#	25	--	-	--	-	--	-	220	4

See footnotes at end of table.

GREEN RIVER BASIN

09315000 GREEN RIVER AT GREEN RIVER UT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO AUGUST 1978

DATE TIME	NOV 14,77 1530		MAR 21,78 1400		MAY 23,78 1530		JUL 6,78 1830		AUG 9,78 1900	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....COSCINODISCUS	--	-	--	-	51	4	--	-	--	-
....CYCLOTELLA	120#	25	--	-	150	12	110#	16	--	-
..PENNALES										
...ACHNANTHACEAE										
....COCCONEIS	--	-	--	-	--	-	22	3	--	-
...CYMBELLACEAE										
....CYMBELLA	--	-	110#	15	150	12	--	-	--	-
....EPITHEMIA	--	-	57	8	100	8	22	3	--	-
...DIATOMACEAE										
....DIATOMA	--	-	--	-	100	8	22	3	--	-
...FRAGILARIACEAE										
....FRAGILARIA	--	-	57	8	--	-	--	-	--	-
....SYNEDRA	120#	25	--	-	51	4	--	-	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	110#	15	260#	20	--	-	--	-
...NAVICULACEAE										
....GYROSIGMA	--	-	57	8	--	-	--	-	--	-
....NAVICULA	120#	25	110#	15	210#	16	--	-	--	-
...NITZSCHIACEAE										
....HANTZSCHIA	--	-	57	8	--	-	--	-	--	-
....NITZSCHIA	--	-	110#	15	100	8	67	10	--	-
...SURIRELLACEAE										
....SURIRELLA	--	-	--	-	51	4	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROCCOCCALES										
...CHROCCOCCACEAE										
....ANACYSTIS	--	-	--	-	--	-	--	-	44	1

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	890	960	---	960	920	---	920	470	310	310	720	770
2	910	920	950	---	960	950	930	570	325	305	670	---
3	910	940	---	980	930	880	950	---	310	---	660	780
4	900	930	940	960	940	830	890	530	315	375	680	780
5	890	---	890	930	---	850	870	510	---	345	680	780
6	---	940	940	900	900	---	840	500	345	380	650	790
7	1270	960	960	900	890	900	800	---	295	390	620	800
8	970	950	940	---	900	870	---	480	320	400	680	830
9	1000	910	940	980	880	940	740	445	---	395	700	---
10	---	910	---	970	890	---	750	460	---	380	690	---
11	930	930	---	920	890	---	750	475	345	---	---	810
12	960	930	940	920	870	1000	750	480	325	460	680	830
13	970	960	960	---	890	1000	740	520	305	415	670	910
14	970	980	950	910	---	970	700	---	290	455	---	---
15	960	970	940	---	---	980	680	590	290	380	---	1090
16	---	960	940	910	880	---	670	600	285	520	---	1070
17	960	960	970	880	---	1100	660	---	330	470	740	970
18	930	980	970	870	880	1080	630	520	---	395	770	940
19	---	1000	950	900	880	1100	650	480	305	590	920	---
20	930	990	880	920	920	1090	---	410	295	600	810	900
21	---	940	910	930	930	1090	---	---	265	490	780	---
22	---	900	---	920	---	1100	590	360	260	495	820	900
23	960	940	980	900	940	1080	---	360	---	550	800	930
24	---	940	990	900	950	1100	580	---	280	520	780	960
25	910	---	1000	910	960	---	650	380	---	---	810	970
26	920	940	1000	880	920	1000	660	375	280	520	760	960
27	890	960	980	900	940	980	640	345	285	---	---	920
28	---	---	1130	580	1000	930	610	330	---	580	750	920
29	---	950	1110	---	---	910	600	335	265	---	770	910
30	---	980	1040	940	---	900	660	---	255	500	780	890
31	980	---	990	940	---	---	---	325	---	560	760	---
MEAN	953	949	969	908	916	985	727	460	299	453	737	892

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	9.5	---	1.0	2.0	---	14.0	15.0	18.0	23.0	27.0	25.0
2	17.0	10.0	4.0	---	2.0	5.0	14.0	16.0	18.0	23.0	27.0	---
3	17.0	10.0	---	1.0	2.0	5.0	14.0	---	18.0	---	28.0	26.5
4	17.0	9.5	4.0	1.0	2.0	3.0	14.0	14.0	18.0	23.0	29.0	25.0
5	17.0	---	4.0	1.0	---	3.5	13.5	14.0	---	22.0	25.0	25.0
6	---	9.5	7.0	1.0	2.0	---	14.0	12.0	19.0	22.0	26.0	25.0
7	16.5	11.0	5.0	1.0	2.0	5.0	14.0	---	19.0	25.0	28.0	24.5
8	17.0	8.0	4.0	---	4.0	5.0	---	13.0	21.0	25.0	27.0	25.0
9	17.0	7.0	2.0	1.0	2.0	6.0	11.0	15.0	---	24.0	29.0	---
10	---	7.0	---	1.0	2.0	---	12.0	16.0	---	25.5	26.5	---
11	15.0	6.0	---	2.0	2.0	---	14.0	16.0	20.0	---	---	20.0
12	14.0	6.0	2.0	2.0	3.5	7.5	14.0	16.0	20.0	25.5	26.5	20.0
13	14.0	6.0	2.0	---	2.0	7.0	14.0	17.0	22.0	25.0	26.0	18.5
14	14.0	6.0	2.0	2.0	---	7.0	15.0	---	20.0	27.0	---	---
15	14.0	8.0	2.0	---	---	7.0	14.5	18.0	22.0	26.5	---	18.0
16	---	7.0	2.0	.0	2.0	---	13.0	19.0	20.0	25.0	---	21.0
17	14.0	7.0	2.0	1.0	---	8.5	11.0	---	20.0	24.0	22.0	19.0
18	15.0	7.0	2.0	2.0	2.0	9.5	14.0	17.0	---	25.5	22.0	20.0
19	---	5.0	1.0	2.0	4.0	9.5	12.0	18.0	20.0	26.5	24.0	---
20	14.0	5.0	.0	2.0	4.0	13.0	---	18.0	20.0	27.0	21.5	15.0
21	---	4.0	.0	2.0	4.0	13.0	---	---	23.0	25.0	23.0	---
22	---	4.0	---	2.0	---	12.0	10.5	18.0	23.0	25.0	22.0	16.0
23	15.0	4.0	.0	2.0	5.0	14.0	---	18.0	---	26.0	24.5	13.0
24	---	4.0	.0	1.0	5.0	13.0	13.5	---	23.0	25.0	23.0	18.0
25	14.0	---	.0	1.0	6.5	---	14.0	17.0	---	---	24.0	18.0
26	14.0	4.0	.0	1.0	5.0	14.0	14.0	16.0	22.0	27.0	22.0	18.0
27	14.0	4.0	.0	1.0	5.0	14.0	15.0	17.0	23.0	---	---	18.0
28	---	---	.0	1.0	5.0	14.5	15.0	18.0	---	27.0	25.0	19.5
29	---	4.0	.0	---	---	14.5	14.5	18.0	21.0	---	24.0	20.0
30	---	4.0	.0	1.0	---	14.5	16.5	---	22.0	27.0	25.0	20.0
31	11.0	---	2.0	1.0	---	---	---	18.0	---	27.0	24.0	---
MEAN	15.0	6.5	2.0	1.5	3.5	9.5	13.5	16.5	20.5	25.0	25.0	20.5

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	155	812	290	1530	210	1150	240	1300	75	413	280	1870
2	140	764	200	1060	220	1220	240	1300	60	301	570	4400
3	100	551	185	984	245	1360	220	1150	60	318	2250	26300
4	105	595	170	900	220	1160	230	1270	80	484	2400	30800
5	95	549	170	900	255	1380	220	1280	180	1240	2500	34300
6	2900	17100	275	1480	290	1650	160	773	280	2030	1850	24800
7	13400	84700	245	1320	270	1520	150	676	275	2100	1250	15500
8	6800	33200	235	1280	225	1280	180	894	275	2100	1100	14000
9	1900	9340	230	1260	225	1250	135	733	210	1420	960	11600
10	1200	6420	220	1190	210	1070	190	1170	140	881	840	8800
11	1100	5700	270	1390	165	757	250	1650	180	1170	1480	16300
12	850	4360	550	2840	170	780	180	1080	190	1320	1900	21900
13	1400	6960	850	4290	205	1050	110	621	160	989	2640	35600
14	1900	8930	830	4350	180	933	80	423	140	854	2550	35200
15	840	3900	330	1730	170	895	110	647	130	804	2600	35500
16	510	2670	175	902	160	873	125	769	120	719	2000	22400
17	410	2150	155	820	170	927	110	636	115	661	1420	13700
18	370	1940	160	808	160	881	75	393	105	593	1030	9120
19	310	1590	200	1020	300	1680	70	367	75	429	800	6630
20	270	1340	185	989	260	1500	70	367	50	275	730	5810
21	220	1030	155	778	220	1160	70	378	45	236	620	4840
22	200	918	110	538	180	680	70	370	40	198	600	4680
23	180	812	140	680	165	610	80	464	35	184	620	4990
24	175	808	140	646	160	497	80	475	50	294	670	5720
25	175	874	140	597	150	433	80	480	85	500	1250	13000
26	175	898	180	904	160	600	80	462	120	703	1440	15600
27	175	912	270	1640	260	1410	80	415	140	824	1900	24800
28	170	854	280	1750	360	2540	80	367	155	937	2700	38100
29	145	673	290	1770	380	2910	80	449	---	---	2570	33600
30	240	1150	265	1500	290	1640	80	454	---	---	2320	25200
31	680	3540	---	---	260	1410	80	471	---	---	1740	17400
TOTAL	---	206040	---	41846	---	37206	---	22284	---	22977	---	562460

09315000 GREEN RIVER AT GREEN RIVER, UT—Continued

WATER-QUALITY RECORDS

LOCATION.--Daily samples collected at bridge on U.S. Highways 50 and 6, in town of Green River, 0.7 mi (1.1 km) upstream from gaging station.

PERIOD OF RECORD.—August 1928 to current year.

PERIOD OF DAILY RECORD.—
SPECIFIC CONDUCTANCE: October 1941 to current year.
WATER TEMPERATURES: May 1949 to September 1959, October 1964 to current year.
SUSPENDED-SEDIMENT DISCHARGE: May 1930 to current year.

REMARKS.—Unpublished daily records of specific conductance obtained before water year 1965 were included in the determination of extremes for period of daily record and are available in files of district office.

EXTREMES FOR PERIOD OF DAILY RECORD.—
SPECIFIC CONDUCTANCE: Maximum daily, 3,250 micromhos Dec. 1, 1967; minimum daily, 272 micromhos May 13, 1956.
WATER TEMPERATURES (water years 1949-59, 1965-76): Maximum, 30.0°C Aug. 13, 1958; minimum, 0.0°C on many days during winter period each year.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 66,000 mg/L July 11, 1936; minimum daily, 19 mg/L Sept. 30, 1974.
SEDIMENT LOADS: Maximum daily, 2,230,000 tons (2,023,000 tonnes) July 11, 1936; minimum daily, 54 tons (49 tonnes) Sept. 27, 1956.

EXTREMES FOR CURRENT YEAR.—
SPECIFIC CONDUCTANCE: Maximum daily, 1,780 micromhos July 6; minimum daily, 460 micromhos June 19.
WATER TEMPERATURES: Maximum, 29.0°C June 2, 28; minimum, 0.0°C Jan. 15, 17, 18.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 18,300 mg/L July 21; minimum daily mean, 33 mg/L Nov. 14, 16.
SEDIMENT LOADS: Maximum daily, 152,000 tons (138,000 tonnes) July 6; minimum daily, 235 tons (213 tonnes) June 24.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	FECAL COLIFORM .7UM-MF (COL./100 ML)	FECAL STREPTOCOCCI KF AGAR (COL. PER 100 ML)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)
OCT										
01...	0930	3160	930	8.0	15.5	9.0	48	300	320	150
18...	1515	3520	890	8.7	12.5	10.0	87	B520	320	140
NOV										
15...	1600	3640	940	8.6	6.5	11.4	110	845	310	110
DEC										
15...	1330	4090	890	8.4	.5	12.5	<1	811	310	130
JAN										
17...	1330	4360	810	8.1	.0	12.0	23	24	330	84
FEB										
17...	1200	3190	870	8.7	3.0	10.2	81	852	320	160
MAR										
22...	1615	4870	770	8.4	8.0	10.6	1	63	290	110
APR										
28...	1600	3610	690	8.6	19.0	9.4	--	130	240	69
MAY										
17...	0800	5080	530	8.3	13.0	8.9	26	B3300	200	69
JUN										
27...	1530	2950	650	8.4	29.0	7.6	21	430	230	96
JUL										
21...	0930	2550	1520	7.9	23.5	--	1200	B2600	650	450
AUG										
24...	1400	2750	840	8.0	24.0	8.0	53	410	290	130
SEP										
28...	1400	2040	890	8.6	18.0	8.8	85	180	320	120

B Results based on colony count outside the acceptable range (non-ideal colony count).

GREEN RIVER BASIN

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	SODIUM AD-SORP-TION RATIO	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)
OCT									
01...	73	33	81	2.0	3.3	209	0	280	33
18...	75	33	79	1.9	2.7	210	6	250	27
NOV									
15...	71	32	80	2.0	2.6	216	14	270	32
DEC									
15...	72	31	71	1.8	2.5	214	4	250	23
JAN									
17...	80	31	71	1.7	2.6	300	0	270	27
FEB									
17...	75	31	73	1.8	2.4	176	12	270	27
MAR									
22...	67	29	73	1.9	2.4	210	6	240	23
APR									
28...	59	23	57	1.6	2.7	182	13	180	17
MAY									
17...	49	19	44	1.4	2.1	160	0	150	15
JUN									
27...	53	23	56	1.6	2.9	160	0	170	22
JUL									
21...	190	43	110	1.9	7.0	250	0	670	23
AUG									
24...	69	29	73	1.9	3.9	200	0	260	25
SEP									
28...	74	33	88	2.1	2.9	220	10	280	32

DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)
OCT									
01...	.4	5.3	606	612	.82	5170	.59	.78	1.4
18...	.4	4.6	620	581	.84	5890	.40	.63	1.0
NOV									
15...	.4	5.0	618	613	.84	6070	.51	.15	.66
DEC									
15...	.3	6.0	617	565	.84	6810	.27	1.3	1.6
JAN									
17...	.4	6.6	638	637	.87	7510	.70	.39	1.1
FEB									
17...	.4	5.8	588	584	.80	5060	.46	.49	.95
MAR									
22...	.3	5.4	552	550	.75	7260	.44	.35	.79
APR									
28...	.5	5.8	440	448	.60	4290	.13	.68	.81
MAY									
17...	.2	5.8	355	364	.48	4870	.42	.54	.96
JUN									
27...	.2	4.5	414	410	.56	3300	.01	.34	.35
JUL									
21...	.3	6.6	1210	1170	1.65	8330	.55	30	31
AUG									
24...	.4	6.7	590	566	.80	4380	.83	--	--
SEP									
28...	.3	5.2	625	634	.85	3440	.39	.22	.61

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT MG/SQ M	PERI-PHYTON BIOMASS ASH WEIGHT MG/SQ M	CHLOR-A PERI-PHYTON CHROMO-SPECT-METRIC (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-SPECT-METRIC (MG/M2)	SUS-PENDED SEDI-MENT (MG/L)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT									
01...	.37	--	--	--	--	--	--	387	99
18...	.04	--	3.8	51000	48850	1.22	.127	49	100
NOV									
15...	.04	--	--	--	--	--	--	36	77
DEC									
15...	.07	--	--	--	--	--	--	--	--
JAN									
17...	.09	--	5.4	--	--	--	--	208	75
FEB									
17...	.07	--	4.0	--	--	--	--	130	63
MAR									
22...	--	--	--	--	--	--	--	144	88
APR									
28...	.10	--	5.7	--	--	--	--	165	89
MAY									
17...	.16	--	--	--	--	--	--	198	90
JUN									
27...	.09	--	--	5420	5090	.004	.002	--	--
JUL									
21...	9.1	--	243	--	--	--	--	19500	99
AUG									
24...	6.4	.02	--	--	--	--	--	2910	89
SEP									
28...	.12	--	--	--	--	--	--	158	94

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
OCT												
18...	1515	2	2	<10	1	0	0	<50	1	<10	4	1300
JAN												
17...	1330	3	1	<10	0	0	0	<50	0	<10	2	2700
FEB												
17...	1200	2	1	<10	1	0	0	<50	0	<10	4	1400
APR												
28...	1600	3	1	<10	0	0	0	<50	0	<10	5	2700
JUL												
21...	0930	130	1	50	1	250	0	250	0	310	3	330000

DATE	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
OCT											
18...	10	<100	2	30	0	.0	.0	2	2	--	120
JAN											
17...	0	<100	3	80	20	9.0	.0	2	2	--	120
FEB											
17...	190	<100	4	60	0	.0	.0	2	2	100	100
APR											
28...	20	<100	0	80	0	.0	.0	2	2	10	10
JUL											
21...	40	500	2	7600	0	.4	.0	12	3	1300	80

DATE	TIME	TOTAL ALDRIN (UG/L)	TOTAL DDD (UG/L)	TOTAL DDE (UG/L)	TOTAL DDT (UG/L)	TOTAL DI-ELDRIN (UG/L)	TOTAL ENDRIN (UG/L)	TOTAL HEPTA-CHLOR (UG/L)	TOTAL HEPTA-CHLOR EPOXIDE (UG/L)
NOV									
15...	1600	ND	ND	ND	ND	ND	ND	ND	ND
FEB									
17...	1200	ND	ND	ND	ND	ND	ND	ND	ND
JUN									
27...	1530	ND	ND	ND	ND	ND	ND	ND	ND
AUG									
24...	1400	ND	ND	ND	ND	ND	ND	ND	ND

ND Material specifically analyzed for but not detected.

GREEN RIVER BASIN

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL LINDANE (UG/L)	TOTAL CHLOR-DANE (UG/L)	TOTAL DI-AZINON (UG/L)	TOTAL MALA-THION (UG/L)	TOTAL METHYL PARA-THION (UG/L)	TOTAL PARA-THION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL SILVEX (UG/L)	TOTAL 2,4,5-T (UG/L)
NOV									
15...	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB									
17...	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUN									
27...	ND	ND	ND	ND	ND	ND	--	--	--
AUG									
24...	ND	ND	ND	ND	ND	ND	--	--	--

DATE	TIME	ALDRIN IN BOTTOM MA-TERIAL (UG/KG)	CHLOR-DANE IN BOTTOM MA-TERIAL (UG/KG)	DDD IN BOTTOM MA-TERIAL (UG/KG)	DDE IN BOTTOM MA-TERIAL (UG/KG)	DDT IN BOTTOM MA-TERIAL (UG/KG)	DI-ELDRIN IN BOTTOM MA-TERIAL (UG/KG)	ENDRIN IN BOTTOM MA-TERIAL (UG/KG)
NOV								
15...	1600	ND	ND	ND	ND	ND	ND	ND
JUN								
27...	1530	--	--	--	--	--	--	--

DATE	HEPTA-CHLOR IN BOTTOM MA-TERIAL (UG/KG)	HEPTA-CHLOR EPOXIDE IN BOT-TOM MA-TERIAL (UG/KG)	LINDANE IN BOTTOM MA-TERIAL (UG/KG)	TOX-APHENE IN BOTTOM MA-TERIAL (UG/KG)	2,4-D IN BOTTOM MA-TERIAL (UG/KG)	2,4,5-T IN BOTTOM MA-TERIAL (UG/KG)	SILVEX IN BOTTOM MA-TERIAL (UG/KG)
NOV							
15...	ND	ND	ND	ND	ND	ND	ND
JUN							
27...	--	--	--	--	ND	ND	ND

ND Material specifically analyzed for but not detected.

PHYTOPLANKTON ANALYSES (OCT.1976 - SEP.1977)

DATE	OCT 1,76	OCT 18,76	NOV 15,76	DEC 15,76	JAN 17,77	FEB 17,77
TIME	0930	1515	1600	1330	1330	1200
TOTAL CELLS/ML	2600	17000	1200	1500	180	280
DIVERSITY: DIVISION	1.0	0.3	0.5	0.8	0.3	0.0
.CLASS	1.0	0.3	0.5	0.8	0.3	0.0
..ORDER	1.0	0.6	0.5	0.8	0.3	0.1
...FAMILY	2.6	0.7	2.6	2.6	1.8	2.7
....GENUS	2.6	0.7	2.8	2.8	1.8	2.8

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...COELASTRACEAE												
....COELASTRUM												
...MICRACTINIACEAE	--	-	--	-		-	--	-	--	-	--	-
....MICRACTINIUM												
...OOCYSTACEAE	--	-	--	-	11	1	--	-	--	-	--	-
....ANKISTRODESMUS												
....CHODATELLA	590#	23	710	4	17	1	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE	--	-	--	-	--	-	--	-	--	-	--	-
....ACTINASTRUM												
....CRUCIGENIA	590#	23	100	1	17	1	--	-	--	-	--	-
....SCENEDESMUS	--	-	--	-	--	-	--	-	--	-	--	-
....TETRASTRUM	--	-	*	0	45	4	--	-	--	-	--	-
..TETRASPORALES	--	-	--	-	--	-	--	-	--	-	--	-
...COCCOMYXACEAE												
....CHLOROSARCINA												
....ELAKATOTHRIX	--	-	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES	--	-	--	-	--	-	--	-	--	-	--	-
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS												
..ZYGNEMATALES	--	-	--	-	*	0	--	-	--	-	--	-
...DESMIDIACEAE												
....CLOSTERIUM	--	-	*	0	--	-	--	-	--	-	--	-
....PLEUROTAENIUM	--	-	--	-	--	-	--	-	--	-	--	-

See footnotes at end of table.

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

PHYTOPLANKTON ANALYSES (OCT.1976 - SEP.1977)

DATE TIME	OCT 1,76 0930		OCT 18,76 1515		NOV 15,76 1600		DEC 15,76 1330		JAN 17,77 1330		FEB 17,77 1200	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..PENNALES												
...NAVICULACEAE												
....ENTOMONEIS	--	-	--	-	11	1	--	-	--	-	--	-
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	--	-	15000#	85	*	0	--	-	--	-	3	1
....MELOSIRA	--	-	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	9	1	--	-	--	-
....COCCONEIS	120	5	--	-	50	4	88	6	--	-	21	7
....RHOICOSPHENIA	--	-	--	-	11	1	53	4	--	-	14	5
...CYMBELLACEAE												
....AMPHORA	--	-	--	-	11	1	--	-	--	-	--	-
....CYMBELLA	--	-	100	1	39	3	35	2	*	0	3	1
....EPITHEMIA	120	5	--	-	--	-	9	1	--	-	--	-
...DIATOMACEAE												
....DIATOMA	--	-	100	1	510#	45	380#	26	50#	28	42	15
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	22	2	--	-	60#	33	52#	19
....SYNEDRA	120	5	*	0	22	2	18	1	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	120	5	--	-	22	2	18	1	--	-	10	4
...MERIDIONACEAE												
....MERIDION	--	-	--	-	--	-	18	1	--	-	--	-
...NAVICULACEAE												
....GYROSIGMA	--	-	--	-	*	0	--	-	--	-	--	-
....NAVICULA	710#	27	100	1	110	10	190	13	*	0	66#	23
....NEIDIUM	--	-	--	-	*	0	--	-	--	-	--	-
....PINNULARIA	--	-	--	-	--	-	9	1	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	240	9	810	5	210#	18	310#	21	60#	33	62#	22
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	*	0	--	-	--	-	7	2
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....ANACYSTIS	--	-	--	-	*	0	--	-	--	-	--	-
..HORMOGONALES												
...OSCILLATORIACEAE												
....OSCILLATORIA	--	-	--	-	--	-	330#	22	10	6	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	--	-	--	-	--	-	--	-
....PHACUS	--	-	--	-	--	-	--	-	--	-	--	-

GREEN RIVER BASIN

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

PHYTOPLANKTON ANALYSES (OCT.1976 - SEP.1977)

DATE TIME	MAY 17,77 0800		JUN 27,77 1530		JUL 21,77 0930		AUG 24,77 1400		SEP 28,77 1400	
TOTAL CELLS/ML	5000		16000		1400		31000		12000	
DIVERSITY: DIVISION	1.1		1.0		0.0		0.8		1.3	
.CLASS	1.1		1.0		0.0		0.8		1.3	
..ORDER	1.6		1.1		0.0		1.1		1.9	
...FAMILY	2.5		2.0		0.0		1.3		2.5	
....GENUS	2.8		2.8		0.0		1.9		3.3	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...COELASTRACEAE										
....COELASTRUM	--	-	520	3	--	-	--	-	--	-
...MICRACTINIACEAE										
....MICRACTINIUM	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	590	12	1900	12	--	-	19000#	59	710	6
....CHODATELLA	--	-	--	-	--	-	--	-	180	2
....DICTYOSPHAERIUM	--	-	2200	14	--	-	--	-	2700#	23
....KIRCHNERIELLA	--	-	*	0	--	-	--	-	89	1
....OOCYSTIS	280	6	440	3	--	-	4700	15	--	-
...SCENEDESMACEAE										
....ACTINASTRUM	--	-	4600#	30	--	-	550	2	710	6
....CRUCIGENIA	630	13	--	-	--	-	--	-	--	-
....SCENEDESMUS	320	6	2100	13	--	-	--	-	180	2
....TETRASTRUM	--	-	--	-	--	-	--	-	360	3
..TETRASPORALES										
...COCCOMYXACEAE										
....CHLOROSARCINA	--	-	--	-	--	-	2500	8	--	-
....ELAKATOTHRIX	--	-	*	0	--	-	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	--	-	--	-	--	-	--	-
..ZYGNEMATALES										
...DESMIDIACEAE										
....CLOSTERIUM	--	-	--	-	--	-	--	-	--	-
....PLEUROTAENIUM	--	-	--	-	--	-	--	-	89	1
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..PENNALES										
...NAVICULACEAE										
....ENTOMONEIS	--	-	--	-	--	-	--	-	--	-
..CENTRALES										
...COSCINODISCALEAE										
....CYCLOTELLA	830#	17	*	0	--	-	--	-	1300	11
....MELOSIRA	--	-	--	-	--	-	--	-	2100#	18
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	--	-	--	-	--	-	270	2
....COCCONEIS	--	-	--	-	--	-	270	1	--	-
....RHOICOSPHENIA	--	-	--	-	--	-	--	-	89	1
...CYMBELLACEAE										
....AMPHORA	--	-	--	-	--	-	--	-	--	-
....CYMBELLA	240	5	--	-	--	-	--	-	--	-
....EPITHEMIA	--	-	--	-	--	-	--	-	--	-
...DIATOMACEAE										
....DIATOMA	40	1	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....FRAGILARIA	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	160	3	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	40	1	--	-	--	-	--	-	--	-
...MERIDIONACEAE										
....MERIDION	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE										
....GYROSIGMA	--	-	--	-	--	-	--	-	--	-
....NAVICULA	40	1	*	0	--	-	410	1	540	5
....NEIDIUM	--	-	--	-	--	-	--	-	--	-
....PINNULARIA	--	-	--	-	--	-	--	-	--	-
...NITZSCHIACEAE										
....NITZSCHIA	1800#	35	2400#	15	1400#	100	550	2	1500	13
...SURIRELLACEAE										
....SURIRELLA	--	-	*	0	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	--	-	1000	7	--	-	--	-	180	2
..HORMOGONALES										
...OSCILLATORIACEAE										
....OSCILLATORIA	--	-	--	-	--	-	3800	12	710	6

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

PHYTOPLANKTON ANALYSES (OCT.1976 - SEP.1977)

DATE	MAY 17,77		JUN 27,77		JUL 21,77		AUG 24,77		SEP 28,77	
TIME	0800		1530		0930		1400		1400	
TOTAL CELLS/ML	5000		16000		1400		31000		12000	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	40	1	--	-	--	-	--	-	--	-
....PHACUS	40	1	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	850	870	900	---	895	910	790	660	670	700	980	---
2	840	---	890	860	888	---	800	640	680	720	1080	910
3	840	850	900	600	888	840	790	620	640	730	1070	---
4	960	870	860	835	---	850	780	630	---	---	980	1110
5	850	880	855	835	870	850	780	620	---	770	940	920
6	840	880	830	840	786	870	800	530	710	1780	910	850
7	830	850	810	---	870	890	---	560	650	840	---	840
8	850	850	790	845	820	870	790	570	600	780	850	890
9	---	860	790	840	886	880	790	590	---	790	810	840
10	830	850	770	860	900	---	790	610	530	850	830	860
11	830	860	---	865	---	---	820	---	540	1090	---	840
12	840	870	790	875	900	850	830	650	550	---	830	840
13	---	870	790	900	934	830	820	---	550	830	840	840
14	850	870	770	900	925	840	830	550	580	820	950	820
15	---	870	780	910	942	890	830	---	540	---	---	860
16	840	870	790	920	895	840	810	600	500	820	840	850
17	810	870	800	900	912	850	770	620	480	810	980	860
18	820	870	820	880	925	840	730	670	470	780	---	920
19	820	870	830	835	900	840	710	720	460	770	1400	880
20	830	880	820	830	845	830	710	---	490	840	1090	---
21	830	870	830	820	865	840	710	670	560	1040	870	910
22	850	870	830	755	945	820	710	660	---	1610	860	---
23	850	870	820	740	910	800	710	680	570	1110	---	870
24	840	880	840	730	885	730	---	610	630	---	910	---
25	850	870	820	725	842	750	790	710	---	---	980	930
26	850	880	840	730	895	750	720	710	640	1010	---	910
27	850	690	770	725	928	---	---	710	620	970	930	910
28	---	760	800	735	935	840	---	650	650	910	890	920
29	860	880	800	---	---	860	700	750	670	970	870	920
30	---	910	810	760	---	860	640	760	660	---	990	930
31	860	---	810	780	---	850	---	770	---	950	950	---
MEAN	845	860	819	815	892	840	767	649	586	932	945	889

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	9.0	2.0	---	1.0	5.5	6.0	17.0	21.0	24.0	26.0	---
2	---	---	3.0	2.0	1.0	---	6.0	17.0	29.0	26.0	26.5	24.0
3	19.5	8.0	2.0	1.0	1.0	6.0	6.0	15.5	24.0	25.0	26.5	---
4	18.5	9.5	1.5	1.0	---	4.0	9.5	16.5	---	---	25.0	24.0
5	17.0	9.0	2.0	1.0	1.0	6.0	11.0	16.5	---	26.5	26.0	24.0
6	17.0	10.0	1.5	1.0	1.0	6.0	13.5	16.0	24.5	25.0	26.0	25.0
7	18.5	10.5	2.5	---	1.0	---	---	16.0	24.5	27.0	---	25.0
8	14.0	10.0	1.5	1.0	1.0	6.5	13.5	17.0	24.5	26.0	27.0	26.0
9	---	9.5	1.5	1.0	1.0	5.5	14.5	18.5	---	26.5	27.5	25.0
10	14.0	8.0	1.0	1.0	1.0	---	17.0	16.0	22.5	25.5	26.5	25.0
11	16.5	8.0	---	1.0	---	---	13.5	---	20.5	25.0	---	22.0
12	16.0	5.5	2.0	1.0	1.0	7.0	13.0	16.5	23.0	---	26.0	23.0
13	---	6.0	1.5	1.0	1.0	7.5	14.0	---	---	25.0	26.0	23.0
14	16.5	6.0	1.0	1.0	4.5	6.0	13.5	16.0	---	27.0	26.0	23.0
15	---	6.0	1.5	0.0	5.0	5.5	12.5	---	---	---	---	23.0
16	14.0	6.5	1.0	1.0	4.0	6.5	13.5	14.5	---	28.0	26.5	21.0
17	14.5	6.0	0.5	0.0	4.0	5.5	16.0	14.0	---	27.0	25.0	19.0
18	12.0	6.0	1.0	0.0	6.0	5.5	14.0	15.0	---	28.5	---	19.0
19	11.0	7.0	0.5	1.0	5.0	3.5	12.5	16.0	---	26.5	27.0	18.5
20	11.0	6.0	1.5	1.0	4.0	5.5	13.5	---	---	27.0	26.0	---
21	11.0	6.0	1.5	1.0	3.5	9.0	13.5	16.0	25.0	26.5	27.0	17.0
22	9.5	7.0	1.0	1.0	4.0	7.5	13.5	17.0	---	26.0	26.0	---
23	8.5	4.0	1.5	1.0	5.5	9.5	15.5	16.5	28.0	27.0	---	17.0
24	11.0	4.5	2.0	1.0	5.0	9.0	---	14.5	21.5	---	25.0	---
25	10.5	5.5	1.0	2.5	3.5	9.0	17.0	15.0	---	---	25.0	19.0
26	9.0	4.0	1.0	1.0	5.0	9.5	17.0	18.0	27.0	27.0	---	19.0
27	10.0	1.5	1.5	1.0	6.0	---	---	17.0	28.5	27.0	22.0	19.0
28	---	1.0	1.5	1.0	6.5	6.5	---	18.0	29.0	26.5	23.0	19.5
29	10.0	1.0	1.0	---	---	6.0	19.5	18.0	28.0	26.5	23.5	19.0
30	---	1.0	1.0	1.0	---	6.0	18.0	19.0	27.0	---	23.0	18.0
31	6.0	---	1.0	1.0	---	6.0	---	20.5	---	26.0	24.0	---
MEAN	13.0	6.5	1.5	1.0	3.0	6.5	13.5	16.5	25.0	26.5	25.5	21.5

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	408	3480	91	1030	100	518	200	2190	200	1840	118	1080
2	445	4250	100	1200	150	1230	200	2650	200	1940	200	2400
3	480	4770	100	1200	200	2260	200	2450	200	2000	226	2860
4	1280	13000	74	715	250	2840	200	2490	200	2050	196	2400
5	1050	10600	57	482	300	3430	200	2280	200	2050	124	1220
6	561	5320	61	634	300	3480	200	1890	200	2000	140	1440
7	292	2490	63	696	310	3980	200	1940	200	1890	106	1090
8	227	1670	57	613	325	4270	200	1890	200	1780	115	1200
9	230	2120	60	659	300	3800	200	2340	200	1670	182	2290
10	235	2230	61	677	300	3330	200	2310	200	1670	200	2680
11	143	1350	46	461	250	2820	200	1850	200	1730	260	3450
12	127	1210	42	380	250	2830	200	1580	150	1300	272	3770
13	110	1050	34	302	225	2560	200	1330	150	1260	334	4840
14	106	944	33	292	200	2200	200	1130	100	829	264	3510
15	105	780	38	363	200	2070	200	1240	100	813	259	3640
16	108	1040	33	328	200	1730	200	1980	100	942	270	3700
17	70	682	47	511	200	1220	205	2360	100	845	223	2890
18	53	512	45	454	200	1940	200	2280	97	796	223	2870
19	52	500	35	322	200	2010	200	2310	337	3990	261	3710
20	57	557	40	406	200	1800	200	2290	300	3970	256	3550
21	50	423	39	404	200	1850	200	2250	237	2920	227	3010
22	50	379	38	367	200	1900	200	2200	295	3280	200	2610
23	59	580	38	367	200	1620	200	2280	180	1940	205	2840
24	60	580	42	426	200	1190	200	2480	168	1710	210	2600
25	59	566	63	631	200	1510	200	2440	191	2150	260	3430
26	70	705	66	584	200	1870	200	2270	146	1530	280	3620
27	80	825	70	711	200	1980	200	2210	110	980	270	3490
28	80	793	100	1020	200	2100	200	2050	100	872	255	3050
29	66	654	100	869	200	2060	200	1890	---	---	225	2640
30	70	716	100	621	200	1950	200	1780	---	---	221	2750
31	77	811	---	---	200	1900	200	1840	---	---	229	3010
TOTAL	---	65587	---	17725	---	70248	---	64470	---	50747	---	87640

GREEN RIVER BASIN

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

WATER-QUALITY RECORDS

LOCATION.--Daily samples collected at bridge on U.S. Highways 50 and 6, in town of Green River, 0.7 mi (1.1 km) upstream from gaging station.

PERIOD OF RECORD.--August 1928 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1941 to current year.
WATER TEMPERATURES: May 1949 to September 1959, October 1964 to current year.
SUSPENDED-SEDIMENT DISCHARGE: May 1930 to current year.

REMARKS.--Unpublished daily records of specific conductance obtained before water year 1965 were included in the determination of extremes for period of daily record and are available in files of district office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,250 micromhos Dec. 1, 1967; minimum daily, 272 micromhos May 13, 1956.
WATER TEMPERATURES (water years 1949-59, 1965-76): Maximum, 30.0°C Aug. 13, 1958; minimum, 0.0°C on many days during winter period each year.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 66,000 mg/L July 11, 1936; minimum daily, 19 mg/L Sept. 30, 1974.
SEDIMENT LOADS: Maximum daily, 2,230,000 tons (2,023,000 tonnes) July 11, 1936; minimum daily, 54 tons (49 tonnes) Sept. 27, 1956.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,080 micromhos Apr. 10; minimum daily, 470 micromhos June 7-11.
WATER TEMPERATURES: Maximum, 29.0°C Aug. 5; minimum, 0.0°C on many days during November to February.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,400 mg/L May 28; minimum daily mean, 32 mg/L Oct. 25.
SEDIMENT LOADS: Maximum daily, 138,000 tons (125,200 tonnes) May 28; minimum daily, 203 tons (184 tonnes) Oct. 25.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
OCT											
27...	1330	3070	1030	8.7	7.5	10.8	4	72	340	120	79
NOV											
17...	1600	3880	950	8.6	3.5	11.8	9	50	320	120	74
DEC											
16...	0830	5840	895	8.4	.0	--	<1	28	300	120	73
JAN											
06...	0845	3610	870	8.3	.0	--	2	10	330	140	82
FEB											
23...	1445	4420	770	8.5	1.5	12.0	4	740	270	81	60
MAR											
24...	1620	5230	870	8.6	8.0	10.2	4	1400	280	49	65
APR											
26...	1440	5650	800	8.4	12.5	9.2	5	49	280	110	65
MAY											
24...	1633	16000	450	8.1	16.5	8.3	79	310	160	41	41
JUN											
21...	1545	9000	550	8.2	20.5	--	6	41	200	77	49
JUL											
29...	1100	4030	720	8.4	23.5	6.6	200	390	290	85	73
AUG											
24...	1900	3250	765	8.5	26.0	8.7	<1	18	280	110	64

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	SODIUM AD-SORP-TION RATIO	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)
OCT											
27...	35	110	2.6	3.1	263	6	300	35	.3	5.3	704
NOV											
17...	34	85	2.1	2.6	240	7	290	27	.3	6.2	652
DEC											
16...	29	74	1.9	2.5	210	4	230	23	.3	6.5	580
JAN											
06...	31	67	1.6	3.1	230	0	250	24	.2	6.4	621
FEB											
23...	28	67	1.8	2.9	220	5	210	24	.3	7.3	527
MAR											
24...	29	78	2.0	3.0	270	7	230	28	.5	8.1	566
APR											
26...	28	64	1.7	2.9	200	4	230	20	.4	7.2	543
MAY											
24...	15	30	1.0	1.8	150	0	110	9.7	.2	8.7	276
JUN											
21...	18	42	1.3	2.0	150	0	150	14	.3	8.0	358
JUL											
29...	27	63	1.6	3.3	250	2	230	22	.3	5.7	513
AUG											
24...	28	74	1.9	3.0	190	8	240	26	.3	4.0	526

DATE	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	UNCOR-RECTED PERI-PHYTON CHLORO-PHYLL A MG/SQ M	UNCOR-RECTED PERI-PHYTON CHLORO-PHYLL B MG/SQ M
OCT											
27...	703	.96	5840	.23	.47	.70	5.5	--	--	--	--
NOV											
17...	644	.89	6830	.49	.66	1.2	--	--	--	--	--
DEC											
16...	546	.79	9150	.54	.58	1.1	--	--	--	--	--
JAN											
06...	577	.84	6050	.64	.78	1.4	13	--	--	--	--
FEB											
23...	513	.72	6290	.54	.77	1.3	--	--	--	--	--
MAR											
24...	582	.77	7990	.50	2.1	2.6	--	--	--	--	--
APR											
26...	520	.74	8280	.59	.95	1.5	10	14.7	14.2	.120	.000
MAY											
24...	290	.38	11900	.34	1.3	1.6	--	--	--	--	--
JUN											
21...	357	.49	8700	.26	.52	.78	--	--	--	--	--
JUL											
29...	550	.70	5580	.41	1.5	1.9	--	--	--	--	--
AUG											
24...	541	.72	4620	.17	.39	.56	--	--	--	--	--

GREEN RIVER BASIN

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
OCT												
27...	1330	2	2	0	0	96	5	<50	0	10	2	1400
JAN												
06...	0845	0	0	0	0	0	0	<50	0	<10	1	590
APR												
26...	1440	5	0	<10	0	10	0	<50	0	10	6	7400
JUL												
29...	1100	15	3	<10	0	30	10	50	0	110	4	32000

DATE	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
OCT											
27...	10	<100	5	50	0	--	.1	2	2	0	0
JAN											
06...	60	<100	2	30	20	.1	.0	2	2	10	10
APR											
26...	0	<100	2	190	0	.0	.0	3	2	30	20
JUL											
29...	10	200	0	1000	0	.0	.0	1	1	150	80

DATE	TIME	TOTAL ALDRIN (UG/L)	TOTAL DDD (UG/L)	TOTAL DDE (UG/L)	TOTAL DDT (UG/L)	TOTAL DI-ELDRIN (UG/L)	TOTAL ENDRIN (UG/L)	TOTAL HEPTA-CHLOR (UG/L)	TOTAL HEPTA-CHLOR EPOXIDE (UG/L)
DEC									
15...	0830	ND	ND	ND	ND	ND	ND	ND	ND
FEB									
23...	1445	ND	ND	ND	ND	ND	ND	ND	ND

DATE	TOTAL LINDANE (UG/L)	TOTAL CHLOR-DANE (UG/L)	TOTAL DI-AZINON (UG/L)	TOTAL MALA-THION (UG/L)	TOTAL METHYL PARA-THION (UG/L)	TOTAL PARA-THION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL SILVEX (UG/L)	TOTAL 2,4,5-T (UG/L)
DEC									
15...	ND	ND	ND	ND	ND	ND	--	--	--
FEB									
23...	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND Material specifically analyzed for but not detected.

GREEN RIVER BASIN

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
Oct 27	1330	CHLOROPHYTA	GREEN ALGAE		
		.CHLOROPHYCEAE			
		..CHLOROCOCCALES			
		...OCCYSTACEAE			
		....ANKISTRODESMUS		130	2
		..VOLVOCALES			
		...CHLAMYDOMONADACEAE			
		....CHLAMYDOMONAS		130	2
		CHRYSOPHYTA			
		.BACILLARIOPHYCEAE	DIATOMS		
		..CENTRALES	CENTRIC		
		...COSCINODISCACEAE			
		....CYCLOTELLA		650	12
		..PENNALES	PENNATE		
		...ACHNANTHACEAE			
		....COCCONEIS		260	5
		...CYMBELLACEAE			
		....CYMBELLA		130	2
		...DIATOMACEAE			
		....DIATOMA		260	5
		...GOMPHONEMATACEAE			
		....GOMPHONEMA		520	9
		...NAVICULACEAE	NAVICULOID		
		D ....NAVICULA		1,200	21
		...NITZSCHIACEAE			
		D ....NITZSCHIA		2,100	37
		...SURIRELLACEAE			
		....SURIRELLA		130	2
		EUGLENOPHYTA	EUGLENOIDS		
		.CRYPTOPHYCEAE	CRYPTOMONADS		
		..CRYPTOMONIDALES			
		...CRYPTOMONODACEAE			
		....CRYPTOMONAS		130	2
		TOTAL		5,600	

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE
DIVERSITY INDICES. BASED ON ACTUAL COUNTS:

PHYL/DIV 0.429
CLASS 0.429
ORDER 0.981
FAMILY 2.725
GENERA 2.725

Date	Time	ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
Nov 17	1600	CHLOROPHYTA	GREEN ALGAE		
		.CHLOROPHYCEAE			
		..CHLOROCOCCALES			
		...OCCYSTACEAE			
		....ANKISTRODESMUS		110	5
		CHRYSOPHYTA			
		.BACILLARIOPHYCEAE	DIATOMS		
		..CENTRALES	CENTRIC		
		...COSCINODISCACEAE			
		....CYCLOTELLA		110	5
		..PENNALES	PENNATE		
		...ACHNANTHACEAE			
		....ACHNANTHES		280	12
		....COCCONEIS		280	12
		...FRAGILARIACEAE			
		....SYNEDRA		57	2
		...NAVICULACEAE	NAVICULOID		
		D ....NAVICULA		400	17
		....PINNULARIA		57	2
		...NITZSCHIACEAE			
		D ....NITZSCHIA		970	42
		TOTAL		2,300	

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE
DIVERSITY INDICES. BASED ON ACTUAL COUNTS:

PHYL/DIV 0.286
CLASS 0.286
ORDER 0.569
FAMILY 2.054
GENERA 2.413

GREEN RIVER BASIN

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time		ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
Dec 16	0830		CHLOROPHYTA	GREEN ALGAE		
			.CHLOROPHYCEAE			
			..CHLOROCOCCALES			
			...OCCYSTACEAE			
		L	....ANKISTRODESMUS			
			CHRYSOPHYTA			0
			.BACILLARIOPHYCEAE	DIATOMS		
			..CENTRALES	CENTRIC		
			...COSCINODISCACEAE			
			....CYCLOTELLA			
			..PENNALES	PENNATE	21	2
			...ACHNANTHACEAE			
			....ACHNANTHES			
		D	....COCCONEIS		21	2
			...CYMBELLACEAE		210	18
			....CYMBELLA			
			...DIATOMACEAE		63	5
			....DIATOMA			
			...FRAGILARIACEAE		42	4
		L	....FRAGILARIA			
			....SYNEDRA			0
			...GOMPHONEMATACEAE		21	2
			....GOMPHONEMA			
			...NAVICULACEAE	NAVICULOID	100	9
			....CALONEIS			
		D	....NAVICULA		21	2
			...NITZSCHIACEAE		230	20
			....HANTZSCHIA			
		D	....NITZSCHIA		21	2
			TOTAL		400	35
					1,200	

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER + 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
ORDER 0.131
FAMILY 2.402
GENERA 2.684

Date	Time		ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
Jan 6	0845		CHRYSOPHYTA			
			.BACILLARIOPHYCEAE	DIATOMS		
			..PENNALES	PENNATE		
			...ACHNANTHACEAE			
		D	....COCCONEIS		33	17
			...DIATOMACEAE			
		L	....DIATOMA			0
			...GOMPHONEMATACEAE			
		L	....GOMPHONEMA			0
			...NAVICULACEAE	NAVICULOID		
		D	....NAVICULA		49	25
			...NITZSCHIACEAE			
		D	....NITZSCHIA		99	50
			...SURIRELLACEAE			
			....SURIRELLA		16	8
			TOTAL		200	

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER + 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
FAMILY 1.730
GENERA 1.730

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
Feb 23	1445	CHLOROPHYTA	GREEN ALGAE		
		.CHLOROPHYCEAE			
		..CHLOROCOCCALES			
		...OCCYSTACEAE			
		L ....ANKISTRODESMUS			
		CHRYSOPHYTA			0
		.BACILLARIOPHYCEAE	DIATOMS		
		..PENNALES	PENNATE		
		...ACHNANTHACEAE			
		....ACHNANTHES			
		....COCCONEIS		160	10
		...CYMBELLACEAE		160	10
		....CYMBELLA			
		....EPITHEMIA		53	3
		...DIATOMACEAE		53	3
		....DIATOMA			
		...FRAGILARIACEAE		210	13
		L ....ASTERIONELLA			
		....SYNEDRA			0
		...GOMPHONEMATACEAE		53	3
		....GOMPHONEMA			
		...NAVICULACEAE	NAVICULOID	210	13
		L ....CALONEIS			
		L ....GYROSIGMA			0
		....NAVICULA			0
		L ....NEIDIUM		160	10
		...NITZSCHIACEAE			0
		D ....NITZSCHIA			
		...SURIRELLACEAE		530	33
		L ....SURIRELLA			0
		TOTAL		1,600	

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
L - LESS THAN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE
DIVERSITY INDICES. BASED ON ACTUAL COUNTS:
FAMILY 2.524
GENERA 2.741

Date	Time	ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
Mar 24	1620	CHRYSOPHYTA			
		.BACILLARIOPHYCEAE	DIATOMS		
		..PENNALES	PENNATE		
		...ACHNANTHACEAE			
		....COCCONEIS			
		...CYMBELLACEAE		170	5
		....CYMBELLA			
		....EPITHEMIA		85	2
		...DIATOMACEAE		85	2
		....DIATOMA			
		...FRAGILARIACEAE		85	2
		D ....FRAGILARIA			
		....HANNAEA		1,900	50
		....SYNEDRA		85	2
		...GOMPHONEMATACEAE		250	7
		....GOMPHONEMA			
		...NAVICULACEAE	NAVICULOID	510	14
		....NAVICULA			
		...NITZSCHIACEAE		340	9
		....NITZSCHIA			
		...SURIRELLACEAE		170	5
		....CYMATOPLEURA		85	2
		TOTAL		3,700	

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE
DIVERSITY INDICES. BASED ON ACTUAL COUNTS:
FAMILY 2.011
GENERA 2.608

GREEN RIVER BASIN

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
Apr 26	1440	CHLOROPHYTA	GREEN ALGAE		
		.CHLOROPHYCEAE			
		..CHLOROCOCCALES			
		...OCCYSTACEAE			
		....ANKISTRODESMUS		140	4
		CHRYSOPHYTA			
		.BACILLARIOPHYCEAE	DIATOMS		
		..CENTRALES	CENTRIC		
		...COSCINODISCACEAE			
		D ....CYCLOTELLA		610	19
		..PENNALES	PENNATE		
		...ACHNANTHACEAE			
		....COCCONEIS		140	4
		...CYMBELLACEAE			
		....CYMBELLA		140	4
		....EPITHEMIA		140	4
		....RHOPALODIA		68	2
		...DIATOMACEAE			
		....DIATOMA		340	10
		...FRAGILARIACEAE			
		D ....FRAGILARIA		470	15
		...GOMPHONEMATACEAE			
		....GOMPHONEMA		200	6
		...NAVICULACEAE	NAVICULOID		
		....NAVICULA		410	12
		...NITZSCHIACEAE			
		....NITZSCHIA		68	2
		...SURIRELLACEAE			
		....SURIRELLA		200	6
		CYANOPHYTA	BLUE-GREEN ALGAE		
		.MYXOPHYCEAE			
		..OSCILLATORIALES	FILAMENTOUS		
		...NOSTOCACEAE			
		....ANABAENA		270	8
		EUGLENOPHYTA	EUGLENOIDS		
		.EUGLENOPHYCEAE			
		..EUGLENALES			
		...EUGLENACEAE			
		....EUGLENA		68	2
		TOTAL		3,200	

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE
DIVERSITY INDICES. BASED ON ACTUAL COUNTS:
PHYL/DIV 0.800
CLASS 0.800
ORDER 1.449

Date	Time	ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
May 24	1630	CHRYSOPHYTA			
		.BACILLARIOPHYCEAE	DIATOMS		
		..PENNALES	PENNATE		
		...ACHNANTHACEAE			
		....ACHNANTHES		150	1
		....COCCONEIS		150	1
		...CYMBELLACEAE			
		....CYMBELLA		150	1
		....EPITHEMIA		450	4
		....RHOPALODIA		150	1
		...DIATOMACEAE			
		....DIATOMA		740	7
		...FRAGILARIACEAE			
		D ....FRAGILARIA		6,700	62
		...GOMPHONEMATACEAE			
		....GOMPHONEMA		300	3
		...NAVICULACEAE	NAVICULOID		
		....NAVICULA		740	7
		...NITZSCHIACEAE			
		....NITZSCHIA		300	3
		CYANOPHYTA	BLUE-GREEN ALGAE		
		.MYXOPHYCEAE			
		..OSCILLATORIALES	FILAMENTOUS		
		...NOSTOCACEAE			
		....ANABAENA		1,000	10
		TOTAL		11,000	

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE
DIVERSITY INDICES. BASED ON ACTUAL COUNTS:
PHYL/DIV 0.456
CLASS 0.456
ORDER 0.456
FAMILY 1.976
GENERA 2.097

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
Jun 21	1545	CHLOROPHYTA			
		•CHLOROPHYCEAE	GREEN ALGAE		
		••CHLOROCOCCALES			
		•••OCCYSTACEAE			
		••••ANKISTRODESMUS		230	14
		••••KIRCHNERIELLA		78	5
		••••SELENASTRUM		78	5
		CHRYSOPHYTA			
		•BACILLARIOPHYCEAE	DIATOMS		
		••PENNALES	PENNATE		
		•••CYMBELLACEAE			
		••••CYMBELLA		78	5
		•••DIATOMACEAE			
		••••DIATOMA		78	5
		•••GOMPHONEMATACEAE			
		••••GOMPHONEMA		160	10
		•••NAVICULACEAE	NAVICULOID		
		••••NAVICULA		78	5
		•••NITZSCHIACEAE			
	D	••••NITZSCHIA		780	48
		•••SURIRELLACEAE			
		••••SURIRELLA		78	5
		TOTAL		1,600	

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV	0.792
CLASS	0.792
ORDER	0.792
FAMILY	2.162
GENERA	2.489

Date	Time	ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
Jul 29	1100	CHLOROPHYTA			
		•CHLOROPHYCEAE	GREEN ALGAE		
		••CHLOROCOCCALES			
		•••SCENEDESMACEAE			
	D	••••ACTINASTRUM		7,100	52
		CHRYSOPHYTA			
		•BACILLARIOPHYCEAE	DIATOMS		
		••CENTRALES	CENTRIC		
		•••COSCINODISCACEAE			
	D	••••CYCLOTELLA		2,400	17
	D	••••MELOSIRA		2,400	17
		••PENNALES	PENNATE		
		•••DIATOMACEAE			
	L	••••DIATOMA			0
		•••NAVICULACEAE	NAVICULOID		
		••••NAVICULA		600	4
		•••NITZSCHIACEAE			
		••••NITZSCHIA		1,200	9
		TOTAL		14,000	

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV	0.999
CLASS	0.999
ORDER	1.403
FAMILY	1.523
GENERA	1.871

GREEN RIVER BASIN

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
Aug 24	1900	CHLOROPHYTA	GREEN ALGAE		
		.CHLOROPHYCEAE			
		..CHLOROCOCCALES			
		...OCCYSTACEAE			
		D ....ANKISTRODESMUS		5,400	29
		...SCENEDESMACEAE			
		....ACTINASTRUM		1,100	6
		....SCENEDESMUS		2,200	11
		CHRYSOPHYTA			
		.BACILLARIOPHYCEAE	DIATOMS		
		..CENTRALES	CENTRIC		
		...COSCINODISCACEAE			
		D ....CYCLOTELLA		5,900	31
		..PENNALES	PENNATE		
		...NITZSCHIACEAE			
		D ....NITZSCHIA		4,300	23
		TOTAL		19,000	

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV	0.995
CLASS	0.995
ORDER	1.528
FAMILY	1.964
GENERA	2.121

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1020	---	860	---	---	880	1040	788	510	490	---	750
2	990	985	---	860	790	900	1020	750	480	560	820	760
3	---	1020	950	860	800	920	---	750	480	510	910	750
4	990	1020	930	895	760	890	1020	744	480	---	---	770
5	1010	---	950	910	760	880	---	701	500	570	880	750
6	990	1000	910	915	840	870	1020	669	480	580	880	750
7	---	1000	910	900	775	820	1030	654	470	600	910	750
8	1020	1020	900	---	---	840	1060	650	470	---	915	950
9	1000	1000	---	890	775	830	1060	632	470	590	900	840
10	1020	1010	880	---	800	860	1080	626	470	600	1040	800
11	1060	---	900	865	---	850	1060	---	470	610	900	---
12	---	1020	905	860	---	900	1040	599	480	640	860	990
13	1050	1040	900	850	800	---	1020	565	---	660	860	1040
14	---	1020	880	850	780	---	960	562	490	650	860	840
15	1000	---	---	850	---	920	920	530	490	670	860	---
16	1000	---	875	---	800	910	940	534	500	---	860	880
17	1020	970	860	850	810	940	960	510	530	---	850	---
18	---	---	800	850	795	910	990	531	550	710	870	850
19	---	940	810	830	730	920	920	510	570	730	855	880
20	975	985	---	860	740	960	880	---	600	710	850	850
21	975	990	840	---	---	1020	---	493	600	750	---	840
22	---	960	---	820	790	1020	950	493	580	770	---	820
23	---	930	930	825	745	980	930	480	600	---,	810	810
24	1020	---	---	830	755	910	960	483	590	780	825	820
25	1020	---	---	---	790	940	1040	481	580	800	---	830
26	1020	950	920	870	---	---	1060	480	---	800	870	840
27	1010	985	920	870	790	920	---	482	610	810	850	---
28	---	---	---	875	855	940	1060	509	540	810	840	840
29	990	840	930	875	830	920	1040	481	480	770	830	850
30	1020	850	940	860	---	920	1020	510	480	770	830	860
31	---	---	830	860	---	950	---	515	---	780	830	---
MONTH	---	---	---	863	---	911	1000	576	520	682	868	835

09315000 GREEN RIVER AT GREEN RIVER, UT--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	---	0.0	---	---	8.0	10.0	15.5	20.5	23.0	---	22.0
2	17.5	8.0	---	0.0	0.5	5.0	12.0	16.5	20.5	23.5	24.5	23.5
3	---	8.5	0.0	0.0	0.0	1.5	---	16.5	21.5	25.0	24.0	23.0
4	17.5	9.0	0.0	0.0	0.5	1.5	12.5	16.5	19.0	---	---	23.0
5	17.5	---	0.0	0.0	1.0	3.0	---	15.5	21.0	25.5	29.0	23.0
6	17.0	8.0	0.5	0.0	1.0	5.5	11.0	15.5	19.0	26.0	21.0	21.0
7	---	8.5	1.0	0.0	1.0	2.5	13.0	16.0	21.5	24.5	23.0	23.0
8	14.0	9.0	1.5	---	---	4.5	14.0	16.5	21.0	---	20.0	24.0
9	14.0	7.5	---	0.0	1.5	5.5	12.5	15.0	20.5	26.5	22.5	22.5
10	15.0	7.5	1.5	---	2.0	5.5	13.5	21.0	20.0	26.0	20.5	20.0
11	14.5	---	1.5	0.0	---	4.5	14.5	---	18.5	25.5	22.0	---
12	---	6.0	1.5	0.0	---	3.0	14.0	16.0	17.0	26.0	22.5	21.0
13	13.0	6.0	1.5	0.0	2.0	---	11.5	14.0	---	26.0	22.5	20.0
14	---	6.0	2.0	0.0	4.0	---	11.5	19.0	17.0	25.5	21.5	20.0
15	12.0	---	---	0.0	---	8.0	11.0	20.5	16.5	26.0	20.5	---
16	12.0	---	0.5	---	2.5	7.5	10.5	19.5	18.5	---	20.5	21.5
17	12.5	5.0	0.0	0.0	4.5	9.5	11.5	25.0	17.5	---	22.5	---
18	---	---	0.0	0.0	7.0	7.5	12.0	21.5	16.0	24.0	21.0	22.5
19	---	4.5	0.0	0.0	4.0	6.5	15.0	18.5	19.0	25.5	22.5	20.5
20	12.5	4.0	---	0.5	3.0	7.0	11.0	---	22.0	24.0	20.5	19.5
21	13.0	4.0	0.0	---	---	7.5	---	15.5	21.0	25.0	---	18.5
22	---	4.0	---	0.5	5.5	9.0	15.0	17.0	20.0	25.0	---	20.5
23	---	3.5	0.0	1.0	4.5	9.0	16.0	16.5	17.0	---	25.5	19.5
24	9.0	---	---	0.5	5.5	8.0	18.0	16.5	20.0	23.0	24.5	19.5
25	6.5	---	---	---	6.0	7.5	---	17.0	20.5	24.0	---	18.0
26	6.5	1.0	0.0	1.0	---	---	---	17.0	---	25.0	23.0	18.5
27	6.5	1.0	0.0	1.0	6.5	5.5	---	18.0	21.5	26.0	23.5	---
28	---	---	---	1.0	6.0	6.0	---	17.0	23.0	24.5	23.5	18.0
29	7.5	0.0	0.0	0.5	8.0	6.0	---	18.5	22.0	24.5	25.0	18.5
30	7.5	0.0	0.0	0.5	---	9.0	15.5	19.0	23.5	25.0	23.5	18.0
31	---	---	0.0	1.0	---	10.0	---	19.0	---	23.0	23.5	---
MONTH	---	---	---	0.5	---	6.0	---	17.5	20.0	25.0	23.0	20.5

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	118	892	180	1580	150	1510	300	4510	300	3990	276	3190
2	98	640	169	1460	200	1820	300	4070	300	3970	330	4130
3	90	556	392	3320	200	2460	250	2720	300	4030	460	6270
4	87	557	303	2410	200	2500	200	1690	250	3130	750	11600
5	68	424	200	1570	200	2350	200	1580	250	2750	760	11700
6	70	423	124	931	200	2560	250	2610	200	2000	1050	16200
7	80	518	75	553	200	2790	300	3730	200	2100	1100	15700
8	81	510	80	616	250	3600	350	4630	200	2240	900	12800
9	59	336	87	684	250	3540	350	4720	250	2920	750	10200
10	58	319	89	632	250	3480	350	4160	250	2940	630	7450
11	70	393	75	484	200	2510	300	3480	250	2970	470	5410
12	130	863	62	395	200	2570	300	3650	250	2830	650	8620
13	156	1180	39	306	250	3420	350	4720	300	3580	500	6670
14	140	1080	50	452	250	3500	350	4540	316	4440	450	5720
15	134	988	100	969	250	3630	300	3650	300	4190	470	5890
16	142	989	70	669	224	3240	300	3480	288	3880	393	4880
17	112	726	56	572	438	6200	300	3320	168	2100	463	5840
18	120	846	150	1750	300	3730	300	3320	164	2000	710	8300
19	120	923	117	1270	300	3590	300	3400	174	2100	780	8400
20	120	956	100	983	250	3120	300	3400	189	2100	712	8250
21	122	949	90	804	250	3290	300	3400	180	2000	730	8160
22	110	766	81	884	300	4070	300	3240	187	2240	840	9960
23	80	512	80	896	300	3830	250	2570	252	3050	920	12300
24	59	363	70	816	250	3290	250	2430	206	2430	1430	20200
25	32	203	59	690	250	3360	250	2300	190	1950	1400	17400
26	49	370	54	639	250	3350	250	2160	180	1700	1350	15800
27	83	681	50	474	250	3180	250	2430	181	1640	1900	24600
28	150	1210	50	462	250	3440	250	2780	193	1900	1500	20100
29	160	1410	70	773	200	2310	250	2600	195	2050	1000	13400
30	221	2080	100	1160	150	1390	250	2650	---	---	830	10900
31	200	1730	---	---	200	2520	250	3140	---	---	640	7460
MONTH	---	24393	---	29204	---	96150	---	101480	---	79220	---	327500

RECEIVED
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DIV. OF OIL, GAS & MINING

KAISER STEEL CORPORATION

SOUTH LEASE COAL PROPERTY

EMERY COUNTY, UTAH

EXISTING WATER RIGHTS WITHIN THE MINE PLAN AREA AND VICINITY

SCALE: 1" : 2000'

DATE: OCT., 1981

PLATE VII-5

Plate VII-5 Cont.

LITTLE PARK ALLOTMENT

W.U.C. NO. 2517 NAME: United States of America
Bureau of Land Management MAP: 101

SOURCE: Pine Spring FLOW: 0.011 cfs

TYPE OF RIGHT: Diligence PRIORITY: 1869

POINT OF DIVERSION: Stock water directly on spring located in the NW¼SE¼, Sec. 24, T16S, R14E, SLBM.

PERIOD OF USE: January 1 to December 31

PURPOSE, EXTENT & PLACE OF USE: Stockwatering: 210 cattle—Little Park Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: See Water User's Claim No. 2537, page 1329
Diversion any each or all claims; total yearly diversion under all claims mentioned 5.88 acre-feet.

W.U.C. NO. 2518 NAME: United States of America
Bureau of Land Management MAP: 112

SOURCE: Williams Spring FLOW: 0.011 cfs

TYPE OF RIGHT: Diligence PRIORITY: 1869

POINT OF DIVERSION: Stock water directly on spring located in the NE¼SE¼, Sec. 8, T17S, R15E, SLBM.

PERIOD OF USE: January 1 to December 31

PURPOSE, EXTENT & PLACE OF USE: Stockwatering: 210 cattle—Little Park Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: See Water User's Claim No. 2537, page 1329
Diversion any each or all claims; total yearly diversion under all claims mentioned 5.88 acre-feet.

W.U.C. NO. 2519 NAME: United States of America
Bureau of Land Management MAP: 91

SOURCE: Spring FLOW: 0.011 cfs

TYPE OF RIGHT: Diligence PRIORITY: 1869

POINT OF DIVERSION: Stock water directly on spring located in the NE¼SE¼, Sec. 18, T16S, R15E, SLBM.

PERIOD OF USE: January 1 to December 31

PURPOSE, EXTENT & PLACE OF USE: Stockwatering: 210 cattle—Little Park Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: See Water User's Claim No. 2537, page 1329
Diversion any each or all claims; total yearly diversion under all claims mentioned 5.88 acre-feet.

Plate VII-5 Cont.

Little Park Allotment

W.U.C. NO. 2520 NAME: United States of America Bureau of Land Management MAP: 102

SOURCE: Spring FLOW: 0.011 cfs

TYPE OF RIGHT: Diligence PRIORITY: 1869

POINT OF DIVERSION: Stock water directly on spring located in the SE¼NW¼, Sec. 32, T16S, R15E, SLBM.

PERIOD OF USE: January 1 to December 31

PURPOSE, EXTENT & PLACE OF USE: Stockwatering: 210 cattel—Little Park Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: See Water User's Claim No. 2537, page 1329
Diversion any each or all claims; total yearly diversion under all claims mentioned 5.88 acre-feet.

W.U.C. NO. 2521 NAME: United States of America Bureau of Land Management MAP: 90

SOURCE: Cottonwood Spring FLOW: 0.011 cfs

TYPE OF RIGHT: Diligence PRIORITY: 1869

POINT OF DIVERSION: Stock water directly on spring located in the NW¼NE¼, Sec. 13, T16S, R14E, SLBM.

PERIOD OF USE: January 1 to December 31

PURPOSE, EXTENT & PLACE OF USE: Stockwatering: 210 cattle—Little Park Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: See Water User's Claim No. 2537, page 1329
Diversion any each or all claims; total yearly diversion under all claims mentioned 5.88 acre-feet.

W.U.C. NO. 2535 NAME: United States of America Bureau of Land Management MAP: 102

SOURCE: Spring FLOW: 0.012 cfs

TYPE OF RIGHT: Diligence PRIORITY: 1869

POINT OF DIVERSION: Stock water directly on spring located in the SW¼SE¼, Sec. 31, T16S, R15E, SLBM.

PERIOD OF USE: January 1 to December 31

PURPOSE, EXTENT & PLACE OF USE: Stockwatering: 210 cattle—Little Park Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: See Water User's Claim No. 2537, page 1329
Diversion any each or all claims; total yearly diversion under all claims mentioned 5.88 acre-feet.

Plate VII-5 Cont.

Little Park Allotment

W.U.C. NO. 2537	NAME: United States of America Bureau of Land Management	MAP:	90
SOURCE:	Spring	FLOW:	0.012 cfs
TYPE OF RIGHT:	Diligence	PRIORITY:	1869

POINT OF DIVERSION: Stock water directly on spring located in the SW¼SE¼, Sec. 12, T16S, R14E, SLBM.

PERIOD OF USE: January 1 to December 31

PURPOSE, EXTENT & PLACE OF USE: Stockwatering: 210 cattle—Little Park Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: 2517, 2518, 2519, 2520, 2521, 2535, 2537, 2539
Diversion any each or all claims; total yearly diversion under all claims mentioned 5.88 acre-feet.

W.U.C. NO. 2539	NAME: United States of America Bureau of Land Management	MAP:	102
SOURCE:	Pine Spring	FLOW:	0.012 cfs
TYPE OF RIGHT:	Diligence	PRIORITY:	1869

POINT OF DIVERSION: Stock water directly on spring located in the NW¼SW¼, Sec. 19, T16S, R15E, SLBM.

PERIOD OF USE: January 1 to December 31

PURPOSE, EXTENT & PLACE OF USE: Stockwatering: 210 cattle—Little Park Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: See Water User's Claim No. 2537, page 1329
Diversion any each or all claims; total yearly diversion under all claims mentioned 5.88 acre-feet.

Plate VII-5 Cont.

COVE ALLOTMENT

W.U.C. NO. 2617 NAME: United States of America Bureau of Land Management MAP: 101

SOURCE: Stream* FLOW:

TYPE OF RIGHT: Diligence PRIORITY: 1902

POINT OF DIVERSION: Stock water directly on reservoir located in the SE¼SE¼, Sec. 27, T16S, R14E, SLBM.

PERIOD OF USE: January 1 to December 31

PURPOSE, EXTENT & PLACE OF USE: Stockwatering: 212 cattle—Cove Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: See Water User's Claim No. 2618, page 1330
Diversion any each or all claims; total yearly diversion under all claims mentioned 5.94 acre-feet.

*Storage from January 1 to December 31, inclusive, in a reservoir located in the SE¼SE¼, Sec. 27, T16S, R14E. SLBM, with a maximum capacity of 0.25 acre-feet.

W.U.C. NO. 2618 NAME: United States of America Bureau of Land Management MAP: 101

SOURCE: Stream* FLOW:

TYPE OF RIGHT: Diligence PRIORITY: 1902

POINT OF DIVERSION: Stock water directly on reservoir located in the NW¼NW¼, Sec. 27, T16S, R14E, SLBM.

PERIOD OF USE: January 1 to December 31

PURPOSE, EXTENT & PLACE OF USE: Stockwatering: 212 cattle—Cove Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: 237, 2617, 2618, 2619, 2620, 2621, 2646, 2665
Diversion any each or all claims; total yearly diversion under all claims mentioned 5.94 acre-feet.

*Storage from January 1 to December 31, inclusive, in a reservoir located in the NW¼NW¼, Sec. 27, T16S, R14E. SLBM, with a maximum capacity of 0.25 acre-feet.

W.U.C. NO. 2619 NAME: United States of America Bureau of Land Management MAP: 101

SOURCE: Stream* FLOW:

TYPE OF RIGHT: Diligence PRIORITY: 1902

POINT OF DIVERSION: Stock water directly on reservoir located in the NE¼SE¼, Sec. 28, T16S, R14E, SLBM.

PERIOD OF USE: January 1 to December 31

PURPOSE. EXTENT & PLACE OF USE: Stockwatering: 212 cattle—Cove Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: See Water User's Claim No. 2618, page 1330
Diversion any each or all claims; total yearly diversion under all claims mentioned 5.94 acre-feet.

*Storage from January 1 to December 31, inclusive, in a reservoir located in the NE¼SE¼, Sec. 28, T16S, R14E, SLBM, with a maximum capacity of 0.25 acre-feet.

Plate VII-5 Cont.

COVE ALLOTMENT

W.U.C. NO. 2620 NAME: United States of America Bureau of Land Management MAP: 101

SOURCE: Stream* FLOW:

TYPE OF RIGHT: Diligence PRIORITY: 1902

POINT OF DIVERSION: Stock water directly on reservoir located in the SW¼SE¼, Sec. 28, T16S, R14E, SLBM.

PERIOD OF USE: January 1 to December 31

PURPOSE, EXTENT & PLACE OF USE: Stockwatering: 212 cattle—Cove Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: See Water User's Claim No. 2618, page 1330
Diversion any each or all claims; total yearly diversion under all claims mentioned 5.94 acre-feet.

*Storage from January 1 to December 31, inclusive, in a reservoir located in the SW¼SE¼, Sec. 28, T16S, R14E, SLBM, with a maximum capacity of 0.25 acre-feet.

W.U.C. NO. 2621 NAME: United States of America Bureau of Land Management MAP: 101

SOURCE: Stream* FLOW:

TYPE OF RIGHT: Diligence PRIORITY: 1902

POINT OF DIVERSION: Stock water directly on reservoir located in the SW¼SW¼, Sec. 28, T16S, R14E, SLBM.

PERIOD OF USE: January 1 to December 31

PURPOSE, EXTENT & PLACE OF USE: Stockwatering: 212 cattle—Cove Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: See Water User's Claim No. 2618, page 1330
Diversion any each or all claims; total yearly diversion under all claims mentioned 5.94 acre-feet.

*Storage from January 1 to December 31, inclusive, in a reservoir located in the SW¼SW¼, Sec. 28, T16S, R14E SLBM, with a maximum capacity of 0.25 acre-feet.

W.U.C. NO. 2646 NAME: United States of America Bureau of Land Management MAP: 101

SOURCE: Stream* FLOW:

TYPE OF RIGHT: Diligence PRIORITY: 1902

POINT OF DIVERSION: Stock water directly on reservoir located in the NE¼NE¼, Sec. 6, T17S, R14E, SLBM.

PERIOD OF USE: January 1 to December 31

PURPOSE, EXTENT & PLACE OF USE: Stockwatering: 212 cattle—Cove Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: See Water User's Claim No. 2618, page 1330
Diversion any each or all claims; total yearly diversion under all claims mentioned 5.94 acre-feet.

*Storage from January 1 to December 31, inclusive, in Marsing Reservoir located in the NE¼NE¼, Sec. 6, T17S, R14E, SLBM, with a maximum capacity of 0.25 acre-feet.

Plate VII-5 Cont.

COVE ALLOTMENT

W.U.C. NO. 2665	NAME: United States of America Bureau of Land Management	MAP:	101
SOURCE:	Stream*	FLOW:	
TYPE OF RIGHT:	Diligence	PRIORITY:	1902

POINT OF DIVERSION: Stock water directly on reservoir located in the NW¼NE¼, Sec. 5, T17S, R14E, SLBM.

PERIOD OF USE: January 1 to December 31

PURPOSE, EXTENT & PLACE OF USE: Stockwatering: 212 cattle–Cove Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: See Water User's Claim No. 2618, page 1330
Diversion any each or all claims; total yearly diversion under all claims mentioned 5.94 acre-feet.

*Storage from January 1 to December 31, inclusive, in a reservoir located in the NW¼NE¼, Sec. 5, T.17S. R.14E, SLBM, with a maximum capacity of 0.25 acre-feet.

Plate VII-5 Cont.

LILA CANYON ALLOTMENT

W.U.C. NO. 2615 NAME: United States of America
Bureau of Land Management MAP: 90

SOURCE: Stream* FLOW:

TYPE OF RIGHT: Diligence PRIORITY: 1902

POINT OF DIVERSION: Stock water directly on reservoir located in the SE¼NW¼, Sec. 10, T16S, R14E, SLBM.

PERIOD OF USE: January 1 to December 31

PURPOSE, EXTENT & PLACE OF USE: Stockwatering: 96 cattle—Lila Canyon Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: 2615, 2616
Diversion any each or all claims; total yearly diversion under all claims mentioned 2.69 acre-feet.

*Storage from January 1 to December 31, inclusive, in a reservoir located in the SE¼NW¼, Sec. 10, T16S, R14E, SLBM, with a maximum capacity of 0.25 acre-feet.

W.U.C. NO. 2616 NAME: United States of America
Bureau of Land Management MAP: 90

SOURCE: Stream* FLOW:

TYPE OF RIGHT: Diligence PRIORITY: 1902

POINT OF DIVERSION: Stock water directly on reservoir located in the NW¼SE¼, Sec. 3, T16S, R14E, SLBM.

PERIOD OF USE: January 1 to December 31

PURPOSE, EXTENT & PLACE OF USE: Stockwatering: 96 cattle—Lila Canyon Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: 2616, 2515
Diversion any each or all claims; total yearly diversion under all claims mentioned 2.69 acre-feet.

*Storage from January 1 to December 31, inclusive, in a reservoir located in the NW¼SE¼, Sec. 3, T16S, R14E, SLBM, with a maximum capacity of 0.25 acre-feet.

Plate VII-5 Cont.

COON SPRING ALLOTMENT

W.U.C. NO. 3894	NAME: United States of America Bureau of Land Management	MAP:	100
SOURCE:	Coon Spring	FLOW:	0.03 cfs
TYPE OF RIGHT:	Diligence	PRIORITY:	1869

POINT OF DIVERSION: Stock water directly on spring located S.50°30' W. 1690 ft. from the SE corner, Sec. 34, T16S, R13E, SLBM.

PERIOD OF USE: January 1 to December 31

PURPOSE, EXTENT & PLACE OF USE: Stockwatering: 300 sheep—Coon Spring Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: See Water User's Claim No. 2473, page 1099
Diversion any each or all claims; total yearly diversion under all claims mentioned 1.68 acre-feet.

COON SPRING ALLOTMENT

Plate VII-5 Cont.

W.U.C. NO. 237	NAME: United States of America Bureau of Land Management	MAP:	100
SOURCE:	Coon Spring	FLOW:	0.03 cfs
TYPE OF RIGHT:	Application No. 29141 Certificate No. 5886	PRIORITY:	May 15, 1957

POINT OF DIVERSION: S. 50°30' W. 1690 ft. from the SE corner, Sec. 34, T16S, R13E, SLBM.

PERIOD OF USE: January 1 to December 31

PURPOSE, EXTENT & PLACE OF USE: Stockwatering: 300 sheep—Coon Spring Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: See Water User's Claim No. 2473, page 1099
Diversion any each or all claims; total yearly diversion under all claims mentioned 1.68 acre-feet.

Stockwatering: 5,180 sheep—Icelander Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: See Water User's Claim No. 3322, page 1290
Diversion any each or all claims; total yearly diversion under all claims mentioned 29.01 acre-feet.

Stockwatering: 212 cattle—Cove Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: See Water User's Claim No. 2618, page 1330
Diversion any each or all claims; total yearly diversion under all claims mentioned 5.94 acre-feet.

Stockwatering: 2,370 sheep—Woodside Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: See Water User's Claim No. 2477, page 1121
Diversion any each or all claims; total yearly diversion under all claims mentioned 13.27 acre-feet.

W.U.C. NO. 2473	NAME: United States of America Bureau of Land Management	MAP:	110d
SOURCE:	Price River	FLOW:	
TYPE OF RIGHT:	Diligence	PRIORITY:	1869

POINT OF DIVERSION: Stock water directly on stream from point where stream enters SE¼NW¼, Sec. 23, T17S, R13E, SLBM, to point where stream leaves NE¼SW¼, Sec. 23, T17S, R13E, SLBM.

PERIOD OF USE: January 1 to December 31

PURPOSE, EXTENT & PLACE OF USE: Stockwatering: 300 sheep—Coon Spring Allotment

CLAIMS USED FOR PURPOSE DESCRIBED: 237, 2473, 3894
Diversion any each or all claims; total yearly diversion under all claims mentioned 1.68 acre-feet.