U. S. DEPARTMENT OF THE INTERIOR

PROTOTYPE OIL SHALE LEASING PROGRAM

OIL SHALE TRACT C-b

DEVELOPMENT MONITORING REPORT #3

(May 1979 through October 1979)

Submitted to:

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By:

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OCCIDENTAL OIL SHALE, INC., OPERATOR

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BIOLOGY

GS Water Goging Stotion - Benthos

VO / VF Vegetotion Site: VO = Open (50 x 70 m), VF = Fenced (50 x 70 m)

■ Microenvironmental Stotion

○ Fish Sompling

● Periphyton

Animal Trap Site

Deer Pellet and Browse Utiliznion Transects

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BIOLOGICAL DEVELOPMENT MONITORING PROGRAM

Figure II C-1

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II C-1 TERRESTRIAL WILDLIFE STUDIES

Introduction

Data were gathered from May 1979 through October 1979. Discussion of the tabular data contained in this section will be restricted to a brief description of the methods used.

Scope of Work

During this reporting period, the following studies were conducted for mule deer: Pellet group densities, browse production and utilization, and natural mortality. In addition, coyote abundance, lagomorph abundance, and small mammal species diversity and abundance studies were also conducted.

Methods

Mule Deer Pellet Group Densities

Pellet group counts were conducted along 30 permanent transects. The plots were raked in the fall and the pellet groups were counted in the spring.

Browse Production and Utilization

Production and utilization studies of bitterbrush and mountain mahogany were conducted along 18 transects; consisting of 150 bitterbrush shrubs and 30 mountain mahogany shrubs. Methods consist of measuring lengths of current growth in the fall (10 shoots per shrub), marking main stems for relocation, and measuring what remains of the current annual growth in the spring.

Natural Mortality

Sampling was done in the spring on 10 plots located in lateral draws and sagebrush gulches. The age and sex of all deer that had died that previous winter were recorded, and each carcus is marked with a metal tag, stamped with the current year.

Coyote Abundance

Coyote abundance was calculated using data collected in October from 30 miles of scent posts (based on U. S. Fish and Wildlife Service design) set one day and collected the following day.

Lagomorph Abundance

Lagomorph pellet counts were conducted along the same transects used for deer pellet group counts. Plot size is .001 acre; plots are checked both in the spring and fall.

Small Mammal

Small mammal trapping was conducted in June and August on the same sites as previous years. During the August trapping period, 100 additional traps were set in the proposed sprinkler irrigation area. Trapping occurred for three consecutive nights (omitting rainy days); after each night, all traps were moved to a nearby transect location.

Results

Mule Deer Pellet Group Densities

Pellet group density data is presented in Table II C-1, showing a decrease in pellet group density from previous years, undoubtedly reflecting the severe winter.

Browse Production and Utilization

Production and utilization data of bitterbrush and mountain mahogony are presented in Tables II C-2 and II C-3. Browse production increased while utilization decreased.

Natural Mortality

Mule deer natural mortality results is shown in Table II C-4. An increase in mortality corresponds to the severe winter.

Coyote Abundance

Coyote scent post data is presented in Table II C-5. The index is below the past five year average of 122.

Lagomorph Abundance

Relative abundance data of cottontails and jackrabbits are presented in Table II C-6.

Small Mammals

Relative abundance data of small mammals are presented in Table II C-7. Several shrews were captured this year.

Table II C-1 Deer pellet group densities, 1978-79.

Transect	Mean pellet groups per acre ± SE (n)*
Chained pinyon-juniper:	
BA17	275 ± 44.1 (20)
BA18	255 ± 45.6 (20)
BA25	220 ± 46.8 (20)
BA21	430 ± 75.4 (20)
BA20	315 ± 43.1 (20)
BA23	300 ± 45.3 (20)
BA01	210 ± 47.5 (20)
BA02	195 ± 35.9 (20)
BA03	125 ± 27.0 (20)
BA04	360 ± 59.6 (20)
BA05	465 ± 68.5 (20)
BA06	165 ± 43.1 (20)
BA07	135 ± 36.5 (20)
BA08	170 ± 30.0 (20)
BA09	175 ± 36.2 (20)
BA28	295 ± 42.0 (20)
BA30	295 ± 55.5 (20)
BA31	365 ± 61.7 (20)
Pinyon-juniper woodland:	
BA19	285 ± 56.3 (20)
BA26	145 ± 32.8 (20)
BA27	165 ± 43.7 (20)
BA16	195 ± 39.4 (20)
BA22	85 ± 23.3 (20)
BA24	310 ± 66.5 (20)
BA10	245 ± 60.5 (20)
BA11	335 ± 59.1 (20)
BA12	250 ± 42.6 (20)

*n = number of 0.01 acre plots sampled

Table II C-2 Browse Production and Utilization, 1978-79.

Transect	A PRODUCTION: length of new shoots in fall(mm) Mean ± SE (n)*	B Lengths of shoots remaining in spring (mm) Mean ± SE (n)*	C UTILIZATION: in percent $C = \frac{A - B}{A} \times 100$
Bitterbrush, chained habitat			
BA18	266 ± 14.6 (10)	81 ± 12.7 (10)	70
BA25	174 ± 13.8 (10)	71 ± 13.0 (10)	59
BA21	211 ± 29.3 (10)	54 ± 10.8 (10)	74
BA20	246 ± 22.3 (10)	66 ± 8.3 (10)	73
BA23	274 ± 32.7 (10)	76 ± 12.5 (10)	72
Combined	234 ± 11.5 (50)	70 ± 5.1 (50)	70
Bitterbrush, pinyon-juniper			
BA19	123 ± 19.7 (10)	37 ± 8.9 (10)	70
BA26	133 ± 8.0 (10)	62 ± 7.9 (10)	53
BA27	154 ± 11.5 (10)	91 ± 12.7 (10)	41
BA16	150 ± 16.3 (10)	26 ± 6.4 (10)	83
BA22	180 ± 16.6 (10)	45 ± 7.6 (10)	75
BA24	116 ± 13.7 (10)	50 ± 13.1 (10)	57
Combined	143 ± 6.4 (60)	52 ± 4.7 (10)	64
Bitterbrush (fertilized), chained habitat			
BA28	183 ± 29.1 (10)	64 ± 14.1 (10)	65
BA31	260 ± 32.8 (10)	37 ± 5.6 (10)	86
BA17	223 ± 40.0 (10)	52 ± 16.2 (10)	77
BA30	200 ± 27.7 (10)	36 ± 8.5 (10)	82
Combined	217 ± 16.4 (40)	47 ± 5.2 (40)	78
Mt. mahogany, chained habitat			
BA28(fertilized)	132 ± 10.0 (10)	22 ± 4.8 (10)	83
BA17(fertilized)	114 ± 9.7 (10)	28 ± 7.1 (10)	75
BA29(control)	134 ± 16.2 (10)	29 ± 8.0 (10)	78
Combined	126 ± 7.1 (30)	26 ± 3.8 (30)	79

*n = number of shrubs sampled

Table II C-3 Browse Production, 1979.

Transect	PRODUCTION: length of new shoots in fall(mm) Mean ± SE (n)*
Bitterbrush, chained pinyon-juniper habitat	
On Tract C-b:	
BA18	173 ± 11.8 (10)
BA25	150 ± 19.5 (10)
BA21	189 ± 22.3 (10)
BA20	242 ± 23.1 (10)
BA23	166 ± 12.9 (10)
On Tract, fertilized plots:	
BA28 (nitrogen)	157 ± 16.9 (10)
BA31 (nitrogen	230 ± 20.4 (15)
BA33 (nitrogen)	154 ± 11.4 (15)
BA17 (nitrogen, phosphorous)	162 ± 16.7 (10)
BA30 (nitrogen, phosphorous)	189 ± 16.1 (15)
BA32 (nitrogen, phosphorous)	202 ± 20.0 (15)
On Big Jimmy Ridge:	
BA01	228 ± 26.6 (10)
BA04	249 ± 25.8 (10)
BA09	119 ± 14.3 (10)
Bitterbrush, pinyon-juniper woodland	
BA19	126 ± 15.2 (10)
BA26	133 ± 12.7 (10)
BA27	131 ± 16.7 (10)
BA16	145 ± 10.2 (10)
BA22	170 ± 22.2 (10)
BA24	107 ± 12.2 (10)
Mt. mahogany, chained pinyon-juniper habitat	
On Tract C-b:	
BA17	93 ± 8.1 (10)
BA28	150 ± 32.9 (10)
BA29	108 ± 12.4 (10)

*n = number of shrubs sampled

Table II C-4 Results of deer mortality studies.

Year	Sampling Location	No. of carcasses found	Hectares sampled (acres)	Carcasses per hectare (/acre)
1978-79	Sagebrush-lateral draw	34	70.5(174)	0.482(0.195)
1977-78	Sagebrush-lateral draw	25	70.5(174)	0.355(0.144)
1976-77	Interim monitoring period - No sampling			
1975-76	Lateral draws	8	7.25(18)	1.10(0.44)
1974-75	Lateral draws	11	7.25(18)	1.52(0.61)

Table II C-5 Results of the coyote scent station survey, 1979.

Line	Location	No. of Stations	No. of Visits
1	Big Jimmy	25	2
2	SG-9	10	0
3	Scandard	10	0
4	SG-15	10	1
5	SG-11	10	2
6	Stewart ridge	15	2
7	Stewart valley	10	0
8	Bailey ridge	10	0

$$\text{Index of abundance} = \frac{\text{No. of visits}}{\text{No. of stations}} \times 1000$$

$$= \frac{7}{100} \times 1000 = 70$$

Table II C-6 Relative abundance of cottontail and jackrabbits, 1978-79. Each transect consists of twenty 0.001 acre plots.

Transect	No. of plots with lagomorph droppings
Chained habitat	
BA01	5
BA02	1
BA03	7
BA04	8
BA05	14
BA06	17
BA07	15
BA08	15
BA09	16
BA17	3
BA18	5
BA25	8
BA21	7
BA20	7
BA23	8
BA28	3
BA30	4
BA31	3
Pinyon-juniper habitat	
BA10	11
BA11	18
BA12	10
BA13	14
BA14	15
BA15	1
BA16	7
BA19	4
BA22	9
BA24	6
BA26	15
BA27	18

Table II C-7 Relative abundance of small mammals, 1979.*

Common name Scientific name	TRAPPING LOCATION								
	Meadow control plot		Meadow development plot		Pinyon-juniper		Chained habitat		Sprinkler area
	JUN (300)	AUG (300)	JUN (300)	AUG (300)	JUN (150)	AUG (150)	JUN (150)	AUG (150)	AUG (150)
Deer mouse *Peromyscus maniculatus*	10.3	10.7	7.7	9.0	8.7	42.0	15.3	25.3	57.3
Montave vole *Microtus montanus*	1.3	2.0	2.7	8.7	0	0	0	0	0.7
Western juniper mouse *Zapus princeps*	2.3	5.3	0	0.7	0	0	0	0	0
Least chipmunk *Eutamias minimus*	0	0	0	0	0	0.7	10.7	18.7	11.3
Vinta chipmunk *Eutamias umbrinus*	0	0	0	0.3	1.3	9.3	2.0	0	0.7
Golden-mantled ground squirrel *Spermophilus lateralis*	0	0	0.7	0.3	4.0	1.3	2.7	0.7	5.3
Richardson's ground squirrel *Spermophilus richardsoni*	0.7	0	0	0	0	0	0	0	0
Bushy-tailed woodrat *Neotoma cinerea*	0	0	0	0	0	0	0	0	0.7
Long-tailed weasel *Mustela frenata*	0.3	0.7	0	0.3	0	0	0.7	0	0
Shrew *Sorex sp?*	0	0.7	0	0	0	0	0	0	0

*Relative abundance = No. of captures ÷ No. of trap-nights x 100. Trap-nights (in parentheses) are No. of traps x No. of nights.

Introduction

Estimates of density, percent relative abundance, and diversity indices were calculated for songbird and songbird-like species for 1979 between May 22 and June 29. Raptor nest censusing for 1979 was conducted during April and June.

Scope of Work

Two transects in chained pinyon-juniper rangeland and two transects in pinyon-juniper woodland were censused in triplicate. One chained pinyon-juniper transect is located near the proposed construction site, the other at a control site which will not be subject to future disturbance. The pinyon-juniper woodland transects are also located in an area near future disturbance and in a control area. Forty-nine raptor nest locations were checked for nesting activity.

Methods

The method employed for censusing was the strip transect method as described by Emlen (1971). This method provides data from which quantitative estimates of density of songbird and songbird-like species can be calculated. Transects are 800m long and are permanently marked with steel rebar stakes and flagging. The method used for the analysis of quantitative data collected from transects sampled are similiar to the analytical methods described in the Sixth Quarterly Report on Inventory of Avifauna at Tract C-b Shale Oil Project (Ecology Consultants, Inc., 1976). Estimates of density, percent relative abundance, and diversity indices were calculated for each census period.

Nests were found using photographs and topographic maps of their locations. Observations were made using a spotting scope from a safe distance (50 meters or more) so as not to disturb possible nesting activity. Any new or undocumented nests were photographed and recorded. Where there was no observed activity, closed examination of the nest was made to look for fresh pellets, whitewash or green material.

Results

Table II C-8 lists the bird species observed during the Spring 1979 census. Tables II C-9 through II C-12 summarize strip transect results and estimates for relative abundance and density for each transect. Diversity indices for each transect are present in Table II C-13. As with previous sample periods, the pinyon-juniper woodland exhibited greater avian diversity than the chained pinyon-juniper rangeland.

In April, during the search for early nesting raptors, fifteen raptor nests were active: Nine red-tailed hawks, four great horned owls, one golden eagle, and one raven.

In June, during the search for late nesting raptors three active nests were observed. Two broods of red-tailed hawks were observed.

Table II C-14 shows the raptor nesting record for the raptors on Tract C-b and the surrounding area.

Nomenclature used in this report follows the American Ornithologists' Union (AOU) Checklist of North American Birds (AOU, 1957) and subsequent revisions (AOU, 1973 and 1976).

TABLE II C-8

BIRD SPECIES OBSERVED ON TRACT C-b DURING SPRING CENSUS PERIOD, 1979

ORDER FAMILY Species	Common Name [1/]	Observed		
		Pinyon-Juniper	Chained Pinyon-Juniper	Fly over
FALCONIFORMES				
CARTHARTIDAE				
Carthartes aura	turkey vulture			X
ACCIPITRIDAE				
Buteo jamaicensis	red-tailed hawk			X
Aquila chrysaetos	golden eagle			X
FALCONIDAE				
Falco sparverius	American kestrel		X	
GALLIFORMES				
TETRAONIDAE				
Centrocercus urophasianus	sage grouse			X
COLUMBIFORMES				
COLUMBIDAE				
Zenaida macroura	mourning dove	X	X	
CAPRIMULGIFORMES				
CAPRIMULGIDAE				
Chordeiles minor	common nighthawk	X	X	X
APODIFORMES				
APODIDAE				
Aeronautes saxatalis	white-throated swift			X
TROCHILIDAE				
Selasphorus platycercus	broad-tailed hummingbird	X	X	

ORDER FAMILY Species	Common Name 1/	Observed Pinyon-Juniper	Chained Pinyon-Juniper	Fly over
PICIFORMES				
PICIDAE				
Colaptes auratus	common flicker	X	X	
Picoides villosus	hairy woodpecker	X		
PASSERIFORMES				
TYRANNIDAE				
Empidonax hammondii	Hammond's flycatcher	X		
Sayornis saya	Say's phoebe		X	
HIRUNDINIDAE				
Iridoprocne bicolor	tree swallow			X
Stelgidopteryx ruficollis	rough-winged swallow			X
CORVIDAE				
Gymnorhinus cyanocephalus	pinyon jay	X	X	
Aphelocoma coerulescens	scrub jay		X	
Nucifraga columbiana	Clark's nutcracker	X		
Corvus corax	common raven		X	X
PARIDAE				
Parus gambeli	mountain chickadee	X		
Parus inornatus	plain titmouse	X		
SITTIDAE				
Sitta carolinensis	white-breasted nuthatch		X	
TROGLODYTIDAE				
Troglodytes aedon	house wren	X	X	

ORDER FAMILY Species	Common Name [1/]	Observed Pinyon-Juniper	Chained Pinyon-Juniper	Fly over
PASSERIFORMES (Continued)				
TURDIDAE				
Turdus migratorius	American robin	X		
Catharus guttata	hermit thrush	X		
Sialia currucoides	mountain bluebird	X	X	
VIREONIDAE				
Vireo solitarius	solitary vireo	X		
PARULIDAE				
Vermivora virginiae	Virginia's warbler	X		
Dendroica coronata	yellow-rumped warbler		X	
Dendroica nigrescens	black-throated gray warbler	X	X	
FRINGILLIDAE				
Carpodacus cassinii	Cassin's finch	X		
Pipilo chlorura	green-tailed towhee		X	
Pooecetes gramineus	vesper sparrow		X	
Junco caniceps	gray-headed junco	X		
Spizella passerina	chipping sparrow	X	X	
Spizella breweri	Brewer's sparrow		X	

[1/] Nomenclature follows the American Ornithologists' Union (AOU) *Checklist of North American Birds* (AOU 1957) and subsequent revisions (AOU 1973 and 1976).

TABLE II C-9

AVIFAUNA ESTIMATES ON TRANSECT 1, CHAINED PINYON-JUNIPER RANGELAND (CONTROL), AT TRACT C-b FOR SPRING SAMPLE PERIOD, 1979

Species	# Obs	Coeff det	Basal adj	Density /ha	% Relative abundance
Mourning dove	1	1.00	*	0.04	1.2
Mountain bluebird	1	*	*	0.04	1.2
Black-throated gray warbler	1	1.00	*	0.04	1.2
Green-tailed towhee	14	0.57	*	0.84	26.0
Vesper Sparrow	10	0.57	*	0.60	18.6
Brewer's sparrow	24	0.49	*	1.68	51.8
			TOTAL	3.24	

TABLE II C-10

AVIFAUNA ESTIMATES ON TRANSECT 2, PINYON-JUNIPER WOODLAND (DEVELOPMENTAL), AT TRACT C-b FOR SPRING SAMPLE PERIOD, 1979

Species	# Obs	Coeff det	Basal adj	Density /ha	% Relative abundance
Mourning dove	3	0.74	*	0.14	5.2
Common flicker	1	0.90	*	0.04	1.5
Hammond's flycatcher	3	0.25	*	0.40	14.9
Pinyon jay	1	1.00	*	0.04	1.5
Mountain chickadee	5	0.56	*	0.30	11.2
Plain titmouse	1	0.31	*	0.12	4.5
White-breasted nuthatch	1	0.59	*	0.06	2.2
House wren	3	0.45	*	0.22	8.2
Mountain bluebird	3	0.42	*	0.24	9.0
Solitary vireo	6	0.59	*	0.34	12.7
Virginia's warbler	7	0.75	*	0.32	11.9
Black-throated gray warbler	8	0.60	*	0.46	17.2
			TOTAL	2.68	

TABLE II C-11

AVIFAUNA ESTIMATES ON TRANSECT 3, CHAINED PINYON-JUNIPER RANGELAND (DEVELOPMENTAL), AT TRACT C-b FOR SPRING SAMPLE PERIOD, 1979

Species	# Obs	Coeff det	Basal adj	Density /ha	% Relative abundance
Common flicker	3	1.00	*	0.10	3.4
Scrub jay	1	0.25	*	0.14	4.8
Mountain bluebird	3	*	*	0.10	3.4
Green-tailed towhee	16	0.57	*	0.96	32.9
Vesper sparrow	12	0.57	*	0.72	24.6
Chipping sparrow	1	0.63	*	0.06	2.1
Brewer's sparrow	12	0.49	*	0.84	28.8
			TOTAL	2.92	

TABLE II C-12

AVIFAUNA ESTIMATES ON TRANSECT 4, PINYON-JUNIPER WOODLAND (CONTROL), AT TRACT C-b FOR SPRING SAMPLE PERIOD, 1979

Species	# Obs	Coeff det	Basal adj	Density /ha	% Relative abundance
Hairy woodpecker	2	0.25	*	0.28	6.9
Hammond's flycatcher	2	0.25	*	0.28	6.9
Clark's nutcracker	1	1.00	*	0.04	1.0
Mountain chickadee	5	0.52	*	0.32	7.8
House wren	5	0.47	*	0.36	8.8
Hermit thrush	4	0.66	*	0.20	4.9
Mountain bluebird	6	0.42	*	0.48	11.8
Solitary vireo	6	0.59	*	0.34	8.3
Black-throated gray warbler	20	0.60	*	1.14	27.9
Cassin's finch	5	0.50	*	0.34	8.3
Chipping sparrow	3	0.34	*	0.30	7.4
			TOTAL	4.08	

TABLE II C-13

SHANNON-WEINER DIVERSITY INDICES (H'), UNBIASED ESTIMATES OF H' [E(H')], VARIANCE OF H' [var (H)'], MAXIMUM EXPECTED VALUE OF H' [H' (max)], AND EQUITABILITY (J), FOR AVIFAUNA TRANSECTS AT TRACT C-b DURING SPRING SAMPLE PERIOD, 1977, 1978, AND 1979

Transect	Vegetation Type	Year	H'	E(H')	var(H')	H'(max)	J
1	Chained Pinyon-Juniper Rangeland (Control)	1977	1.494	1.454	0.009	2.079	0.718
		1978	1.665	1.634	0.007	2.398	0.694
		1979	1.166	1.152	0.003	1.792	0.651
2	Pinyon-Juniper Woodland (Developmental)	1977	2.469	2.432	0.003	2.890	0.854
		1978	2.398	2.350	0.004	2.708	0.886
		1979	2.272	2.236	0.002	2.485	0.914
3	Chained Pinyon-Juniper Rangeland (Developmental)	1977	1.950	1.895	0.004	2.197	0.888
		1978	1.885	1.868	0.003	2.398	0.786
		1979	1.526	1.508	0.003	1.946	0.784
4	Pinyon-Juniper Woodland (Control)	1977	2.740	2.709	0.001	2.944	0.931
		1978	2.545	2.522	0.002	2.890	0.881
		1979	2.189	2.168	0.002	2.398	0.913

DEFINITIONS FOR SHANNON-WEINER CALCULATION VARIABLES

H' = Diversity. H' is an estimate of the diversity of the total population of individuals in a species pool. It is dependent on both the number of species in a collection and the relative abundance of each species (or evenness). Diversity can be thought of as measuring the uncertainty of predicting the species of an individual drawn at random from the entire population of individuals of several species. This uncertainty, or diversity, of a community can be increased either by increasing the number of species or by evening out the distribution of individuals among species. An H' value of zero is obtained when all individuals belong to the same species. Maximum values are obtained when all individuals belong to different species.

E (H') = The expected or unbiased estimate of H'. An estimate of diversity (H') corrected for bias associated with sample size.

Var (H') = Variance of H'. Variance is a measure of dispersion. It is defined to be the average of the square of the deviations of a set of measurements about their mean.

H' (max) = The maximum value of H'. An estimate of maximum possible species diversity for a given number of species and individuals.

J = Equitability or Evenness. The distribution of individuals among species is referred to as equitability. As discussed under diversity, evenness is a component of diversity. Large values of J are indicative of a rather even distribution of densities among species, while low values suggest dominance by a few species. J is expressed as the ratio of H' over H' max (H'/H'max).

~~TABLE 8.5.3-1~~ RAPTOR NESTING RECORD

Nest No.	Species	Status 1976 April	Status 1976 June	Status 1977 April	Status 1977 June	Status 1978 April	Status 1978 June	Status 1979 April	Status 1979 June	
1	Unknown	I		I	I	I	I	I	I	
2	Unknown	I		I	I	I	I	I	I	
3	Unknown	I		I	I	I	I	I	I	
4	Red-tailed Hawk	E or Y		I	I	I	I	I	I	
5	Unknown	I		I	I	I	I	I	I	
5a	Common Raven	-		-	E or Y	I	I	I	I	
6	Red-tailed Hawk	E		I	2Y	I	I	E or Y	I	(Golden Eagle)
7	Red-tailed Hawk	I		I	-	E	I	E or Y	I	
8	Red-tailed Hawk	4Y		I	I	E	I	E or Y	I	
9	Common Raven	I		I	I	I	I	I	I	
10	Red-tailed Hawk	I		I	I	I	I	I	I	
11	Could not locate									
12	Red-tailed Hawk	I		I	I	E	1Y	I	I	
13	Red-tailed Hawk	I		I	I	I	I	E or Y	I	
14	Unknown	I		I	I	I	I	I	I	
15	Unknown	I		I	I	I	I	I	I	
16	Great Horned Owl	I		I	I	E	2Y	I	I	
17	Great Horned Owl	I		I	I	I	I	I	I	
18	Red-tailed Hawk	I		I	I	I	I	1Y	I	Great Horned Owl
19	Great Horned Owl	1Y		I	I	I	I	I	I	
20	Unknown							I	I	
21	Not on Map									
22	Red-tailed Hawk	I		I	I	I	I	E or Y	I	
23	Not on Map									
24	Red-tailed Hawk	I		I	I	I	I	I	I	
25	Great Horned Owl	I		I	I	I	I	I	I	
26	Unknown	I		I	I	I	I	Nest has fallen		
27	Unknown	I		I	I	I	I	E or Y	I	Red-tailed Hawk
28	Golden Eagle	1Y		I	I	I	I	I	I	
29	Unknown	I		I	I	I	I	I	I	
30	Red-tailed Hawk	2Y		I	I	I	I	I	I	
31	Unknown	I		I	I	I	I	I	I	
32	Great Horned Owl	2Y		2Y	-	I	I	I	I	
33	Unknown	I		I	I	I	I	I	I	
34	Unknown	I		I	I	I	I	I	I	
35	Unknown	I		I	I	I	I	I	I	
36	Red-tailed Hawk	2Y		I	I	I	I	E	2Y	
37	Unknown	I		I	I	I	I	I	I	
38	Unknown	I		I	I	I	I	E or Y	Y	Raven
39	Golden Eagle	1Y		I	I	I	I	I	I	
40	Unknown	I		I	I	E	2Y	2	I	Great Horned Owl
41	Unknown	I		I	I	I	I	Nest has fallen		
42	Unknown	I		I	I	I	I	I	I	
42a	Red-tailed Hawk	-		-	2Y	I	I	E or Y	I	Great Horned Owl
43	Great Horned Owl	2Y		I	I	I	I	I	I	
44	Unknown	I		I	I	I	I	I	I	
45	Red-tailed Hawk	2Y		I	I	I	I	E	2Y	
46	Red-tailed Hawk					E	I	E or Y	I	
47	Unknown					I		I	I	
48	Great Horned Owl							E	I	
49	Red-tailed Hawk							E	I	

Code:

I = inactive nest
E = adult bird observed in an incubating posture; presumed to be incubating eggs.
(2) Y = number of young observed in the nest.
E or Y = adult bird observed in an incubating post ure; due to time of year, assumed to be either incubating eggs or brooding very young chicks.

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II C-2 AQUATIC STUDIES

Introduction

Aquatic sampling for periphyton was conducted from May 1, 1979 through November 1, 1979. Benthos data were also collected between May 1 through November 1.

Scope of Work

Periphyton data were collected monthly during the reporting period at the following stations: Hunter Creek Gauging Station WU61 (PC-6), Stewart Gulch Gauging Station WU07 (PC-1) and starting in June a station was placed midway between the above stations. Benthos data was collected by the U. S. Geological Survey at the same stations as stated in previous reports.

Methods

Collection of periphyton samples is accomplished monthly from two sites using artificial substrated (glass slides) which have been incubated in the water for at least 21 days. Sampling ran from May 1, 1979 to November 1, 1979, resulting in five collections. Six glass slides were incubated at each of the two locations. At the time of collection, three slides are collected at each location and placed in individual plastic containers for biomass analysis (total of 6 slides). Also, three additional slides are collected in individual plastic containers and preserved with "M-3" preservative, a modified Lugol's solution, for taxonomic identification and enumeration (total of 6 slides).

The slides collected for biomass are oven dried at $105^{o}C$ to constant weight. They are then weighed to the nearest milligram, ashed at $500^{o}C$, rewetted with distilled water to replace the water of hydration, oven dried, and weighed again. Biomass is reported as mg ash-free dry weight per cm^2.

Slides collected for taxonomic identification and enumeration are scraped into an appropriate volume of water along with a sufficient amount of preservative to limit microbial growth and/or algal decomposition. The resulting solution is mixed thoroughly, and an aliquot withdrawn for quantitative analysis using an inverted microscope at a magnification of 560X.

Results

Periphyton

Table II C-15 is a composite list of all periphyton taxa collected during the sampling period. Periphyton data for abundance (ash free dry weight) are presented in Tables II C-16 thru II C-20. Diatoms dominated the periphyton at all stations during the entire study accounting for 88.5 to 100% of the total relative abundance of all algae identified.

Benthos

Benthos data are not available at this time; they are being compiled by the U. S. Geological Survey.

COMPOSITE LIST OF ALL PERIPHYTON TAXA COLLECTED DURING MAY, JULY, AUGUST, SEPTEMBER AND OCTOBER 1979 FROM STEWART, MIDDLE AND HUNTER STATIONS, PICEANCE CREEK, COLORADO

Taxon	May			July			August			September			October		
	S	M	H	S	M	H	S	M	H	S	M	H	S	M	H
Division: Bacillariophyta (Diatoms)		*													
Achnanthes lanceolata				+	D	+	D	D	D	D	D	D	D	D	D
A. lanceolata var. dubia	P		P	+	+	D	+	+	+						
A. linearis					+										
A. minutissima	D		D	D	D	+	D	D	D	D	D	D	D	D	D
Amphipleura sp.	+														
Amphora ovalis					+		+				+				
A. ovalis var. pediculus	+		P												
A. perpusilla					+	+		+	+		+				
A. veneta					+			+							
Cocconeis placentula var. euglypta	+		+		+	+	D	+	+	D	D	D	+	D	+
C. placentula var. lineata													+	D	+
Cyclotella mengehiniana	+														+
Cymbella affinis				+	+	+	+	+	+			P			
C. cymbiformis					+	P		P							
C. lunata														P	
C. microcephala				+		+									
C. minuta	+		+	+	+			P					+	+	P
C. sinuata				+	+	+		+				P			
C. tumida												P			
Denticula elegans												+			
Diatoma vulgare				+	+	+	P		P				P		P
Fragilaria construens var. venter	+											P			
F. crotonensis				+	+		P				P				
F. vaucheriae	+			D	+	+	+	+	P					+	+
Frustulia rhomboides					+										
F. rhomboides var. capitata														+	

Taxon	May			July			August			September			October		
	S	M	H	S	M	H	S	M	H	S	M	H	S	M	H
Bacillariophyta (continued)		*													
Gomphonema olivaceum	+		+	D	+	+	+	+	+		+		+	+	+
G. parvulum	+		+	D	+	D	+	D	D	+	+	+	+	+	+
G. subclavatum				+	+		+	+	+						
G. spp.													+		
Gyrosigma acuminatum	P		+												P
G. attenuatum						+			+						
Hannaea arcus	+		P												
H. arcus var. amphioxys	+														
Hantzschia amphioxys				+		+						P			
Melosira granulata	+				+										
Meridion circulare			+	+	+		+	+	+	+	+	P	P		
M. circulare var. constrictum										+	+				
Navicula arvensis				+	+	+		+	+	+	+	+			
N. cryptocephala				+	+	+	+	+	D	+	+	+			
N. secreta var. apiculata	D		D										+	D	D
N. viridula var. avenacea	D		D	D	D	D	D	+	D	+	+	+	P	+	D
N. spp.	+		+										+	+	+
Nitzschia acicularis	+		+	+	+				+				+	+	+
N. apiculata				+	+	P			+				P	+	+
N. ignorata				+											
N. spp.	D		D	D	D	D	+	D	D	+	+	+	+	D	+
Pinnularia spp.				+	+			+					+		P
Rhoicosphenia curvata					+	P		+	+		+	P	+	+	
Stauroneis smithii															+
Surirella angustata	+														P
S. ovalis													P		
S. ovata	+		+	+	+	+	+	+	+	P			+	P	+
Synedra ulna	+		+	+	+	+	+	P		P			P	+	P
S. ulna var. oxyrhynchus				+	+	P	+			P	+				
Total Diatoms	21		15	26	32	19	17	20	19	10	15	9	15	17	16

Taxon	May			July			August			September			October		
	S	M	H	S	M	H	S	M	H	S	M	H	S	M	H
Division: Chlorophyta (Green Algae)															
Cladophora sp.							+	D							
Cosmarium sp.								P							
Gongrosira debaryana										+	+	+	+	+	P
Oedogonium sp.					+				+					+	
Scenedesmus bijuga													+		
Spirogyra sp.											+				
Stigeoclonium sp.													+		
Total Green Algae					1		1	1	1	1	2	1	3	2	
Division: Cyanophyta (Blue-green Algae)															
Lyngbya sp.								+	+						
Total Blue-green Algae								1	1						
Division: Euglenophyta (Euglenoids)															
Trachelomonas volvocina	+														
Total Euglenoids	1														
TOTAL TAXA	22		15	26	33	19	18	22	21	11	17	10	18	19	16

+ - Organism present in sample area counted

P - Organism present in sample, but did not occur in area counted

* - No samples were collected from this station during month indicated

D - Organism occurred as a dominant, accounting for greater than five percent of the total relative abundance (≥ 5% RA)

S - Stewart Station, M - Middle Station, H - Hunter Station

TABLE II C-16

ABUNDANCE (units/cm^2), PERCENT RELATIVE ABUNDANCE (%RA), AND SPECIES DIVERSITY OF PERIPHYTON FROM ARTIFICIAL SUBSTRATES ON PICEANCE CREEK, COLORADO AT STEWART AND HUNTER STATIONS, MAY 7, 1979

TAXON	Stewart Station					Hunter Station				
	Rep 1	Rep 2	Rep 3	$\bar{x}$	% RA	Rep 1	Rep 2	Rep 3	$\bar{x}$	% RA
Division: Bacillariophyta (Diatoms)										
Achnanthes lanceolata var. dubia		P	P			P	P	P		
A. minutissima	56	65	84	68.3	10.84	131	62	112	101.6	8.40
Amphipleura sp.	4			1.3	0.21					
Amphora ovalis var. pediculus			3	1.0	0.16	P				
Cocconeis placentula var. euglypta	7	7	6	6.6	1.05	11		28	13.0	1.07
Cyclotella meneghiniana			3	1.0	0.16					
Cymbella minuta	7	4	3	4.6	0.73		2		0.6	0.05
Diatoma vulgare						11			3.6	0.30
Fragilaria construens var. venter			3	1.0	0.16					
F. vaucheriae	4		6	3.3	0.52					
Gomphonema olivaceum	11	11	12	11.3	1.79	11	10	56	25.6	2.12
G. parvulum		11		3.6	0.57	22	5	14	13.6	1.12
Gyrosigma acuminatum	P	P					2		0.6	0.05
Hannaea arcus	15	32	15	20.6	3.27	P				
H. arcus var. amphioxys		4		1.3	0.21					
Melosira granulata	11		3	4.6	0.73					
Meridion circulare						22			7.3	0.60
Navicula secreta var. apiculata	48	166	152	122.0	19.37	185	47	112	114.6	9.47
N. viridula var. avenacea	127	364	310	267.0	42.39	1,100	259	700	686.3	56.74
N. spp.	7			2.3	0.36		2	42	14.6	1.21
Nitzschia acicularis	15	22	9	15.3	2.43	11	5	42	19.3	1.60
N. spp.	41	83	71	65.0	10.32	163	57	350	190.0	15.71
Surirella angustata	4			1.3	0.21					

TAXON	Stewart Station					Hunter Station				
	Rep 1	Rep 2	Rep 3	$\bar{x}$	% RA	Rep 1	Rep 2	Rep 3	$\bar{x}$	% RA
Bacillariophyta (continued)										
Surirella ovata	11	22	22	18.3	2.90	43		7	16.6	1.37
Synedra ulna		11		3.6	0.57	P		7	2.3	0.19
Total Diatoms	368	802	702	623.3	98.95	1,710	451	1,470	1,209.6	100.00
Division: Euglenophyta (Euglenoids)										
Trachelomonas volvocina	4	4	12	6.6	1.05					
Total Euglenophyta	4	4	12	6.6	1.05					
Total Individuals	372	806	714	629.9	100.00	1,710	451	1,470	1,209.6	100.00
Total Taxa	16	14	16	22		11	10	11	15	
Diversity ($\bar{d}$)	3.10	2.51	2.52	2.71		1.85	1.94	2.29	2.12	
Maximum Diversity ($\bar{d}$max)	4.00	3.81	4.00	4.46		3.46	3.32	3.46	3.91	
Equitability (%)	77.54	66.02	63.08	60.74		53.37	58.40	66.13	54.29	

P - indicates organism present in sample, but did not occur in area counted.

TABLE II C-17

ABUNDANCE (UNITS/CM^2), PERCENT RELATIVE ABUNDANCE (%RA), AND SPECIES DIVERSITY ($\bar{d}$) OF PERIPHYTON FROM ARTIFICIAL SUBSTRATES AT STEWART, MIDDLE AND HUNTER STATIONS, JULY 9-10, 1979

Taxa	Stewart Station					Middle Station					Hunter Station				
	Rep 1	Rep 2	Rep 3	X	%RA	Rep 1	Rep 2	Rep 3	X	%RA	Rep 1	Rep 2	Rep 3	X	%RA
Division: Bacillariophyta (Diatoms)															
Achnanthes lanceolata	13,500	10,600	5,300	9,800.0	2.5	17,500	82,800	72,700	57,666.7	30.3	1,400	6,000	2,400	3,266.7	2.0
A. lanceolata var. dubia	5,800	28,700	10,600	15,033.3	3.8	7,800	7,200	5,800	6,933.3	3.7	8,200	7,100	11,900	9,066.7	5.5
A. linearis						1,900			633.3	0.3					
A. minutissima	69,500	52,900	27,200	49,866.7	12.6	12,300	27,100	11,500	16,966.7	8.9	2,700	1,000		1,233.3	0.8
Amphora ovalis							1,600		533.3	0.3					
A. perpusilla								720	240.0	0.1		1,000		333.3	0.2
A. veneta							800		266.7	0.1					
Cocconeis placentula var. euglypta						650	P		216.7	0.1	1,400			466.7	0.3
Cymbella affinis		1,500		500.0	0.1			720	240.0	0.1			600	200.0	0.1
C. cymbiformis								720	240.0	0.1	P	P			
C. microcephala	1,900		760	886.7	0.2							1,000		333.3	0.2
C. minuta			760	253.3	0.1	650		720	456.7	0.2					
C. sinuata			760	253.3	0.1		800		266.7	0.1			600	200.0	0.1
Diatoma vulgare		1,500		500.0	0.1		800		266.7	0.1	P	P			
Fragilaria crotonensis		1,500	11,300	4,266.7	1.1	1,900		5,800	2,566.7	1.3					
F. vaucheriae	30,900	28,700	16,600	25,400.0	6.4	16,900	2,400	3,600	7,633.3	4.0	2,100		4,200	2,100.0	1.3
Frustulia rhomboides								720	240.0	0.1					
Gomphonema olivaceum	26,100	28,700	19,700	24,833.3	6.3	1,900	3,200	5,000	3,366.7	1.8	690	P	1,200	630.0	0.4
G. parvulum	39,600	52,900	13,600	35,366.7	9.0	6,500	6,400	2,900	5,266.7	2.8	26,800	42,300	43,000	37,366.7	22.6

Taxa	Stewart Station					Middle Station					Hunter Station				
	Rep 1	Rep 2	Rep 3	X	%RA	Rep 1	Rep 2	Rep 3	X	%RA	Rep 1	Rep 2	Rep 3	X	%RA
Gomphonema subclavatum	7,700	6,000	1,500	5,066.7	1.3		800		266.7	0.1					
Gyrosigma attenuatum												P	600	200.0	0.1
Hantzschia amphioxys			760	253.3	0.1						P		600	200.0	0.1
Melosira granulata						2,600			866.7	0.5					
Meridion circulare			3,000	1,000.0	0.2		800	1,400	733.3	0.4					
Navicula arvensis	1,900	6,000	6,000	4,633.3	1.2	1,300	1,600	720	1,206.7	0.6	690			203.0	0.1
N. cryptocephala	15,400	15,100	8,300	12,933.3	3.3	5,800	8,800	9,400	8,000.0	4.2	2,700	5,000	6,000	4,566.7	2.7
N. viridula var. avenacea	96,500	154,300	77,100	109,300.0	27.7	66,100	34,200	30,200	43,500.0	22.9	70,800	105,900	59,700	78,800.0	47.6
Nitzschia acicularis	960			320.0	0.1	1,900	800		900.0	0.5					
N. apiculata		1,500	760	753.3	0.2	650	800		483.3	0.3		P	P		
N. ignorata		1,500		500.0	0.1										
N. spp.	58,900	110,400	56,700	75,333.3	19.1	29,800	31,800	18,700	26,766.6	14.1	28,200	20,200	26,000	24,800.0	15.0
Pinnularia spp.			760	253.3	0.1			720	240.0	0.1					
Rhoicosphenia curvata								720	240.0	0.1	P	P			
Surirella ovata	1,900	6,000	3,800	3,900.0	1.0		1,600	720	773.3	0.4	P	2,000	600	866.7	0.5
Synedra ulna	13,500	12,100	4,500	10,033.3	2.5	650	1,600	720	990.0	0.5	P	2,000		666.7	0.4
S. ulna var. oxyrhynchus	4,800	1,500	3,000	3,100.0	0.8		800	720	506.7	0.3	P				
TOTAL DIATOMS	388,860	521,400	272,760	394,229.8	100.0	176,800	216,700	174,920	189,473.6	99.4	145,680	193,300	157,400	165,526.8	100.0
Division: Chlorophyta (Green Algae)															
Oedogonium sp.							1,600	P	533.3	0.3					
TOTAL GREEN ALGAE									533.3	0.3					

Taxa	Stewart Station					Middle Station					Hunter Station				
	Rep 1	Rep 2	Rep 3	X	%RA	Rep 1	Rep 2	Rep 3	X	%RA	Rep 1	Rep 2	Rep 3	X	%RA
TOTAL INDIVIDUALS (units/cm^2)	388,860	521,400	272,760	394,339.8		176,800	218,300	174,920	190,006.9		145,680	193,500	157,400	165,526.8	
TOTAL TAXA				26					33					19	
DIVERSITY, $\bar{d}$				3.25					3.10					2.24	
MAXIMUM DIVERSITY, $\bar{d}max$				4.70					5.04					4.25	
EQUITABILITY, e				69.18					61.48					52.82	

P - indicates organism present in sample, but did not occur in area counted.

TABLE II C-18

ABUNDANCE (UNITS/CM^2), PERCENT RELATIVE ABUNDANCE (%RA), AND SPECIES DIVERSITY ($\tilde{d}$), OF PERIPHYTON FROM ARTIFICIAL SUBSTRATES AT STEWART, MIDDLE AND HUNTER STATIONS, AUGUST 10, 1979

Taxa	Stewart Station					Middle Station					Hunter Station				
	Rep 1	Rep 2	Rep 3	X	%RA	Rep 1	Rep 2	Rep 3	X	%RA	Rep 1	Rep 2	Rep 3	X	%RA
Division: Bacillariophyta (Diatoms)															
Achnanthes lanceolata	2,600	4,800	19,300	8,900.0	13.6	30,200	34,000	45,400	36,533.3	6.1	4,800	3,000	2,000	3,266.7	7.0
A. lanceolata var. dubia	270	450	1,900	873.3	1.3		11,300	14,300	8,533.3	1.4	3,000	1,900	450	1,783.3	3.8
A. minutissima	11,000	5,400	39,700	18,700.0	28.6	257,000	300,600	246,000	267,866.7	45.1	25,200	16,000	15,100	18,766.7	40.5
Amphora ovalis	140			46.7	0.1										
A. perpusilla								2,400	800.0	0.1	250			83.3	0.2
A. veneta						2,500	P	2,400	1,633.3	0.3					
Cocconeis placentula var. euglypta	15,000	16,000	35,900	22,300.0	34.1	2,500		4,800	2,433.3	0.4	1,800	160		653.3	1.4
Cymbella affinis	270	P	380	216.7	0.3			2,400	800.0	0.1	250			83.3	0.2
C. cymbiformis							P								
C. minuta						P									
C. sinuata							2,800		933.3	0.2					
Diatoma vulgare												P			
Fragilaria crotonensis	P														
F. vaucheriae	270		760	343.3	0.5	2,500	2,800	7,200	4,166.7	0.7		P			
Gomphonema olivaceum	140	150		96.7	0.1	12,600	14,200	16,700	14,500.0	2.4	500	160		200.0	0.5
G. parvulum	1,400	150	4,900	2,150.0	3.3	50,400	126,700	83,600	86,900.0	14.6	8,800	4,200	5,000	6,000.0	12.9
Gomphonema subclavatum	P		380	126.7	0.2	7,600	2,800	9,600	6,666.7	1.1	500		300	266.7	0.6
Gyrosigma attenuatum											250			83.3	0.2
Meridion circulare	P	P	760	253.3	0.4	5,000	2,800	9,600	5,800.0	1.0	250			83.3	0.2
Navicula arvensis							2,800	4,800	2,533.3	0.4	1,000	940	450	796.7	1.7
N. cryptocephala	550	450	380	460.0	0.7	7,600	19,800	14,300	13,900.0	2.3	3,300	3,800	3,200	3,233.3	7.4
N. viridula var. avenacea	5,600	5,100	8,300	6,333.3	10.0	22,700	17,000	21,500	20,400.0	3.4	3,800	3,900	3,000	3,566.7	7.7
Nitzschia acicularis												160		53.3	0.1
N. apiculata											P	310		103.3	0.2
N. spp.	960	1,700	1,500	1,386.7	2.1	73,100	39,700	33,400	48,733.3	8.2	9,600	4,500	5,600	6,566.7	14.2
Pinnularia spp.							2,800		933.3	0.2					
Rhoicosphenia curvata								4,800	1,600.0	0.3		150		50.0	0.1

TABLE II C-18 (Continued)

Taxa	Stewart Station					Middle Station					Hunter Station				
	Rep 1	Rep 2	Rep 3	X	%RA	Rep 1	Rep 2	Rep 3	X	%RA	Rep 1	Rep 2	Rep 3	X	%RA
Surirella ovata		150		50.0	0.1	P	2,800		933.3	0.2		310	150	153.3	0.3
Synedra ulna	140		760	300.0	0.4	P	P								
S. ulna var. oxyrhynchus			380	126.7	0.2										
TOTAL DIATOMS	38,340	34,350	115,300	62,633.4	96.0	473,700	582,900	523,200	526,599.8	88.5	63,300	39,490	35,250	46,013.2	99.2
Division: Chlorophyta (Green Algae)															
Cladophora sp.		4,500	3,800	2,766.6	4.2		P	191,000	63,667.7	10.7					
Cosmarium sp.							P								
Oedogonium sp.												160		53.3	0.3
TOTAL GREEN ALGAE		4,500	3,800	2,766.6	4.2			191,000	63,667.7	10.7		160		53.3	0.3
Division: Cyanophyta (Blue-green Algae)															
Lyngbya sp.								11,900	3,966.7	0.7			760	253.3	0.5
TOTAL BLUE-GREEN ALGAE								11,900	3,966.6	0.7			760	253.3	0.5
TOTAL INDIVIDUALS (units/cm^2)	38,340	38,850	119,100	65,430.1		473,700	582,900	726,100	594,233.2		63,300	39,650	36,010	46,319.8	
TOTAL TAXA				18					22					21	
DIVERSITY, $\bar{d}$				2.57					2.74					2.78	
MAXIMUM DIVERSITY, $\bar{d}$ max				4.27					4.46					4.39	
EQUITABILITY, e				61.57					61.51					63.23	

P - indicates organism present in sample, but did not occur in area counted.

TABLE II C-19

ABUNDANCE (UNITS/CM^2), PERCENT RELATIVE ABUNDANCE (%RA), AND SPECIES DIVERSITY ($\bar{d}$) OF PERIPHYTON FROM ARTIFICIAL SUBSTRATES AT STEWART, MIDDLE AND HUNTER STATIONS SEPTEMBER 12, 1979

Taxon	Stewart Station					Middle Station					Hunter Station				
	Rep 1	Rep 2	Rep 3	$\bar{x}$	%RA	Rep 1	Rep 2	Rep 3	$\bar{x}$	%RA	Rep 1	Rep 2	Rep 3	$\bar{x}$	%RA
Division: Bacillariophyta (Diatoms)															
Achnanthes lanceolata	78,100	47,300	56,000	60,466.6	14.0	65,900	63,200	82,100	70,400.0	28.6	90,700	78,400	172,000	113,700.0	12.2
A. minutissima	370,000	204,000	160,000	244,666.6	56.7	113,000	83,500	111,000	102,500.0	41.7	655,000	445,000	1,016,000	705,333.3	75.8
Amphora ovalis							810		270.0	0.1					
A. perpusilla						1,100			366.6	0.2					
Cocconeis placentula var. euglypta	123,000	94,500	69,600	95,700.0	22.2	28,100	46,200	76,700	50,333.3	20.5	64,800	45,400	72,600	60,933.3	6.5
Cymbella affinis												P			
C. sinuata												P			
C. tumida													P		
Denticula elegans													9,100	3,033.3	0.3
Fragilaria construens var. venter													P		
F. crotonensis						P		P							
Gomphonema olivaceum							810		270.0	0.1					
G. parvulum	2,500			833.3	0.2	1,100		1,100	733.3	0.3		12,400	18,100	10,166.6	1.1
Hantzschia amphioxys													P		
Meridion circulare	P	3,800		1,266.6	0.3			2,200	733.3	0.3	P	P			
M. circulare var. constrictum			1,500	500.0	0.1		1,600		533.3	0.2					
Navicula arvensis	2,500	3,800	1,500	2,600.0	0.6	1,100		5,400	2,166.6	0.9		4,100	9,100	4,400.0	0.5
N. cryptocephala	P	1,900	P	633.3	0.2	1,100	1,600	2,00	1,633.3	0.7	6,500	4,100	18,100	9,566.6	1.0
N. viridula var. avenacea	P	3,800	P	1,266.6	0.3	1,100	810	3,200	1,703.3	0.7	P	P	9,100	3,033.3	0.3
Nitzschia spp.	2,500	11,300	3,000	5,600.0	1.3		1,600	9,700	3,766.6	1.5	6,500	8,200		4,900.0	0.5
Rhoicosphenia curvata							810		270.0	0.1	P				
Surirella ovata	P														

Taxon	Stewart Station					Middle Station					Hunter Station				
	Rep 1	Rep 2	Rep 3	$\bar{x}$	%RA	Rep 1	Rep 2	Rep 3	$\bar{x}$	%RA	Rep 1	Rep 2	Rep 3	$\bar{x}$	%RA
Synedra ulna	P														
S. ulna var. oxyrhynchus	P						810		270.0	0.1					
Total Diatoms				413,533.0	95.9				235,949.6	96.0				915,066.4	98.3
Division: Chlorophyta (Green Algae)															
Gongrosira debaryana	22,700	9,500	21,200	17,800.0	4.1	13,000	5,700	P	6,233.3	2.5	P	45,400	P	15,333.3	1.6
Spirogyra spp.						10,800			3,600.0	1.5					
Total Green Algae				17,800.0	4.1				9,833.3	4.0				15,333.3	1.6
Total Individuals (units/cm^2)				431,333.0					245,782.9					930,199.7	
Total Taxa				11					17					10	
Diversity, $\bar{d}$				1.75					2.11					1.30	
Maximum diversity, $\bar{d}$ max				3.46					4.09					3.32	
Equitability, e				50.61					51.67					39.04	

P indicates organism present in sample, but did not occur in area counted.

TABLE II C-20

ABUNDANCE (UNITS/CM^2), PERCENT RELATIVE ABUNDANCE (%RA), AND SPECIES DIVERSITY ($\bar{d}$) OF PERIPHYTON FROM ARTIFICIAL SUBSTRATES AT STEWART, MIDDLE AND HUNTER STATIONS OCTOBER 1979

	Stewart Station					Middle Station					Hunter Station				
Taxon	Rep 1	Rep 2	Rep 3	$\bar{x}$	%RA	Rep 1	Rep 2	Rep 3	$\bar{x}$	%RA	Rep 1	Rep 2	Rep 3	$\bar{x}$	%RA
Division: Bacillariophyta (Diatoms)															
Achnanthes lanceolata	28,400	31,200	48,200	35,993.3	6.67	20,500	8,100	12,700	13,766.7	17.68	104,500	92,500	129,000	108,800.0	49.42
A. minutissima	368,600	399,800	507,600	425,333.3	78.97	39,500	17,600	45,400	34,166.7	43.87	44,400	33,800	51,300	43,166.7	19.61
Cocconeis placentula var. euglypta	5,700	39,700	17,000	20,800.0	3.86	2,900	4,700	4,800	4,133.3	5.31	11,100	8,000	7,200	8,766.7	3.98
C. placentula var. lineata	P	8,500	8,500	5,666.7	1.05	6,200	5,700	4,800	5,566.7	7.15	P	2,700	2,400	1,700.0	0.77
Cyclotella meneghiniana											P	--	1,200	400.0	0.18
Cymbella lunata						P	--	--							
C. minuta	P	2,800	2,800	1,866.7	0.35	370	340	P	236.7	0.30	--	P	--		
Diatoma vulgare	--	P	P								P	--	--		
Fragilaria vaucheriae						--	--	440	146.7	0.19	--	--	1,200	400.0	0.18
Frustulia rhomboides var. capitata						--	170	--	56.7	0.07					
Gomphonema olivaceum	11,300	31,200	8,500	17,000.0	3.16	2,200	3,500	4,400	3,366.7	4.32	1,000	P	3,600	1,533.3	0.70
G. parvulum	2,800	2,800	2,800	2,800.0	0.52	730	170	P	300.0	0.38	--	1,800	--	600.0	0.27
G. spp.	--	--	5,700	1,900.0	0.35										
Gyrosigma acuminatum											P	--	--		
Meridion circulare	--	P	--												
Navicula secreta var. apiculata	11,300	5,700	5,700	7,566.7	1.40	6,200	2,400	8,300	5,633.3	7.23	7,100	21,400	34,600	21,033.3	9.55
N. viridula var. avenacea	P	P	--			5,500	2,500	3,100	3,700.0	4.75	16,100	16,000	32,200	21,433.3	9.73
N. spp.	2,800	--	2,800	1,866.7	0.35	1,100	500	440	680.0	0.87	1,000	P	--	333.3	0.15
Nitzschia acicularis	P	2,800	P	933.3	0.17	--	170	440	203.3	0.26	1,000	--	1,200	733.3	0.33
N. apiculata	--	P	--			--	170	P	56.7	0.07	P	890	--	296.7	0.13
N. spp.	8,500	14,200	2,800	8,500.0	1.58	3,300	2,000	6,500	3,933.3	5.05	9,100	10,700	8,400	9,400.0	4.27
Pinnularia spp.	2,800	--	--	933.3	0.17						--	--	P		
Rhoicosphenia curvata	--	2,800	5,700	2,833.3	0.53	1,500	340	P	613.3	0.79					
Stauroneis smithii											1,000	--	--	333.3	0.15
Surirella angustata											--	--	P		
S. ovalis	--	P	P												

TABLE II C-20 (Continued)

Taxon	Stewart Station					Middle Station					Hunter Station				
	Rep 1	Rep 2	Rep 3	$\bar{x}$	%RA	Rep 1	Rep 2	Rep 3	$\bar{x}$	%RA	Rep 1	Rep 2	Rep 3	$\bar{x}$	%RA
Bacillariophyta (Cont.)															
Surirella ovata	2,800	--	--	933.3	0.17	--	--	P			1,000	2,700	--	1,233.3	0.56
Synedra ulna	--	P	--			P	170	--	56.7	0.07	P	P	P		
Total Diatoms				534,866.6	99.30				76,616.8	98.36				220,163.2	99.98
Division: Chlorophyta (Green Algae)															
Gongrosira debaryana	P	2,800	2,800	1,866.7	0.35	1,500	1,000	870	1,123.3	1.44	P	--	P		
Oedogonium sp.						--	--	440	146.7	0.19					
Scenedesmus bijuga	2,800	--	--	933.3	0.17										
Stigeoclonium sp.	2,800	--	P	933.3	0.17										
Total Green Algae				3,733.3	0.69				1,270.0	1.63			-0-	-0-	
Total Individuals (units/cm^2)				538,599.9					7,7886.8				220,163.2		
Total Taxa				18					19				16		
Diversity, $\bar{d}$				1.39					2.70				2.26		
Maximum diversity, $\bar{d}$ max				4.17					4.25				4.00		
Equitability, e				33.35					63.44				56.61		

P indicates organism present in sample, but did not occur in area counted.

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TERRESTRIAL
VEGETATION STUDIES

II C-3 TERRESTRIAL VEGETATION STUDIES

The studies completed during this report period will be reported in the next data report.

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SOIL SURVEY &
PRODUCTIVITY
ASSESSMENT

II C-4 SOIL SURVEY AND PRODUCTIVITY ASSESSMENT

No additional studies were made during this time period.

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DENDROCHRONOLOGY &
DENDROCLIMATOLOGY
STUDIES

II C-5 DENDROCHRONOLOGY & DENDROCLIMATOLOGY STUDIES

No additional studies were made during this time period.

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III OTHER STUDIES

Data were collected in four of the programs in the Other Studies categories during the period May 1979 through October 1979. These programs were the Micro-environmental Studies, the Tract Photography Studies, the Industrial Health and Safety Studies, and the Traffic Load Studies. The other programs in the Other Studies categories were inactive during this time period.

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FISH AND WILDLIFE
MANAGEMENT PLAN

III A FISH & WILDLIFE MANAGEMENT PLAN

No additional studies were made during this time period.

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III B REVEGETATION STUDIES

The studies completed during this report period will be reported in the next data report.

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MICRO-ENVIRONMENTAL
STUDIES

III-C MICRO-CLIMATE PROGRAM

Introduction

Micro-climatic parameters for May, 1979 - October, 1979 include the following:

1. Maximum and minimum temperature at surface and at one meter.

2. Precipitation

Scope

In addition to the extensive meteorology study in the Air Quality Section, micro-climatic stations are monitored. Studies on micro-climatic parameters on the C-b Tract provide data that are useful in assessing changes in vegetation production and structure, animal populations, or animal activity patterns, and may also be correlated with changes in functional components of the C-b ecosystem that may occur as a result of shale oil development. Five microclimatic stations are located in developmental sites and five in control sites.
The following sites are monitored:

Mc Station Locations

BC01 Chained Pinyon-juniper Rangeland, Veg. Plot 1
BC02 Chained Pinyon-juniper Rangeland, Veg. Plot 2
BC03 Plateau Sagebrush, Veg. Plot 3
BC04 Valley Bottom Sagebrush, Veg. Plot 4
BC05 Pinyon-juniper Woodland, Veg. Plot 5
BC06 Pinyon-juniper Woodland, Veg. Plot 6
BC07 Chained Pinyon-juniper Rangeland
(Animal Trapping Transect)
BC08 Bunchgrass Community, South-facing Slope
BC09 Valley Bottom Sagebrush, Mouth of Sorghum Gulch
BC13 Mixed Mountain Shrubland, North-facing Slope

All temperature readings consist only of maximum and minimum readings for two-week periods. Precipitation will be measured only during the growing season, March through October. Therefore, precipitation data from meteorology stations AB20 and AB23 are utilized for winter-month readings (November - February) for valley and pinyon-juniper microclimate stations. Snow measurements are obtained approximately from November - February.

Refer to Section IV for information on the four-digit computer station codes.

MICROCLIMATE DATA

TEMPERATURE MAXIMA AND MINIMA AND PRECIPITATION TOTALS

MAY '79 - OCTOBER '79

Site Number	PARAMETER	MONTH					
		MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER
BC01	Air Temperature Maximum (°C)	18	20	20	28	27	28
	Air Temperature Minimum (°C)	-14	-12	6	0	-1	-6
	Surface Temperature Maximum (°C)	20	40	42	40	40	35
	Surface Temperature Minimum (°C)	-9	-12	-3	0	-4	-5
	Total Precipitation (Cm)	0.00	1.50	0.03	0.30	0.05	0.23
BC02	Air Temperature Maximum (°C)	24	29	36	34	29	29
	Air Temperature Minimum (°C)	-10	-5	-9	1	-1	-5
	Surface Temperature Maximum (°C)	26	43	43	40	39	34
	Surface Temperature Minimum (°C)	-12	-7	-2	2	-4	-6
	Total Precipitation (Cm)	0.00	3.91	0.08	2.03	0.03	0.30
BC03	Air Temperature Maximum (°C)	15	28	27	30	26	930.0
	Air Temperature Minimum (°C)	-9	-3	-10	1	-2	930.0
	Surface Temperature Maximum (°C)	22	35	37	37	39	32
	Surface Temperature Minimum (°C)	-8	-6	-8	6	-2	-3
	Total Precipitation (Cm)	0.00	4.11	0.08	0.46	0.13	0.28
BC04	Air Temperature Maximum (°C)	20	35	37	39	32	31
	Air Temperature Minimum (°C)	-5	-8	-1	0	-5	-7
	Surface Temperature Maximum (°C)	23	36	41	35	30	32
	Surface Temperature Minimum (°C)	-10	4	0	0	-6	-8
	Total Precipitation (Cm)	0.00	4.01	0.13	1.65	0.03	0.36
BC05	Air Temperature Maximum (°C)	21	34	34	35	32	27
	Air Temperature Minimum (°C)	-10	-1	-5	1	-5	-8
	Surface Temperature Maximum (°C)	25	38	37	40	34	30
	Surface Temperature Minimum (°C)	-6	-2	-9	5	-2	-8
	Total Precipitation (Cm)	0.00	2.46	0.05	0.97	0.03	0.08
BC06	Air Temperature Maximum (°C)	21	33	32	32	31	29
	Air Temperature Minimum (°C)	-12	-7	-3	3	-5	-7
	Surface Temperature Maximum (°C)	25	41	42	44	38	34
	Surface Temperature Minimum (°C)	-14	0	-11	1	-2	-3
	Total Precipitation (Cm)	0.00	4.67	0.08	2.79	0.10	0.38
BC07	Air Temperature Maximum (°C)	21	34	35	36	30	28
	Air Temperature Minimum (°C)	-7	-7	-5	3	-4	-6
	Surface Temperature Maximum (°C)	24	36	37	36	35	28
	Surface Temperature Minimum (°C)	-9	-8	-3	2	-5	-6
	Total Precipitation (Cm)	0.00	3.07	0.05	1.65	0.00	0.25
BC08	Air Temperature Maximum (°C)	9850	37	34	9850	25	2[illegible]
	Air Temperature Minimum (°C)	9850	1	1	9850	-2	-[illegible]
	Surface Temperature Maximum (°C)	9850	39	47	9850	38	33
	Surface Temperature Minimum (°C)	9850	-5	-4	9850	-1	-1
	Total Precipitation (Cm)	9850	0.41	0.13	9850	0.00	0.05
BC09	Air Temperature Maximum (°C)	22	35	36	38	33	29
	Air Temperature Minimum (°C)	-12	-10	0	-2	-9	-12
	Surface Temperature Maximum (°C)	30	42	40	39	39	35
	Surface Temperature Minimum (°C)	-10	-6	0	2	-7	-9
	Total Precipitation (Cm)	0.00	5.16	0.20	0.08	0.05	9450
BC13	Air Temperature Maximum (°C)	20	32	33	32	34	29
	Air Temperature Minimum (°C)	-11	-5	-6	5	-4	-6
	Surface Temperature Maximum (°C)	25	42	43	43	39	33
	Surface Temperature Minimum (°C)	-14	1	-4	1	-4	-4
	Total Precipitation (Cm)	0.00	6.58	0.10	1.78	0.15	0.05

9850 - Vandalized
9450 - Dead Animal

TRACT PHOTOGRAPHY

III D TRACT PHOTOGRAPHY

This section ocntains an explanation of work accomplished during the period of this report for:

1. Surface Program
2. Aerial Program

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SURFACE
PHOTOGRAPHY

III D-1 SURFACE PHOTOGRAPHY

A 360° panorama was photographed at each of the photo points shown on Figure III D-1 during the summer of 1979.

A complete set of the 35 mm slides are numbered as to station, aspect and date. The set is stored in plastic envelopes and bound in a three ring binder and filed in a dust and light controlled container as part of the permanent record of the C-b Shale Oil Project.

Color infrared panoramas at each of the springs sites have been obtained in June and August and composite mosaics have been synthesized. By this technique, some of the effects of soil moisture can be quadrilaterally inferred. These data will also be compared to Landsat images.

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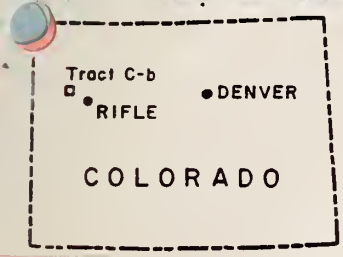

SURFACE PHOTOGRAPHY NETWORK

^{6}P = Photo Map Station

Figure III D-1

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AERIAL
PHOTOGRAPHY

III D-2 AERIAL PHOTOGRAPHY

Annual color infra-red photography is required by the Development Monitoring Program. By verbal agreement with the Area Oil Shale Office this program is temporarily suspended and an investigation into the use of LANDSAT imagery is being pursued. At the same time, 7 ground truth sites have been selected and Ground Color IR photography is being taken at times coinciding with satelite overflights.

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III E ARCHAEOLOGICAL STUDIES

No additional studies were conducted during this report period.

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III F SCENIC VALUES STUDY

No additional studies were made during this time period.

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INDUSTRIAL
HEALTH & SAFETY

III G INDUSTRIAL HEALTH AND SAFETY

Periodic reports on Health and Safety Activities have been requested by the Area Oil Shale Supervisor. Such reports are those prepared by the C-b Project and all contractors for distribution to outside Federal and State agencies, i.e., Mine Safety and Health Administration (MSHA) and the Colorado Division of Mines and inspection reports made by these agencies and received by the Project and all contractors at the C-b site.

Data are presented in this section as provided by the Health and Safety Department. It is noted here that the reproduction quality of these reports is the best obtainable. Originals are on file at the C-b Tract.

1) Quarterly Employment Report. On the bottom of this report the Injury Rate (IR) is to be recorded. Reports for the second and third quarters of 1979 are included in this semi-annual data report (Table III G-1; 2 pages). Refer to Section III H, Traffic Load, for more information on the trace work force.

2) Injury and Illness Report. Table III G-2 summarizes the basic manhours, accident, and injury rate data contained in Table III G-3 for the period of this report.

3) C-b Tract Gas Analysis. During shaft sinking operations hand held field instruments are used to monitor for hydrogen sulfide (H_2S) and methane (CH_4) at specific time intervals. These monitoring intervals start immediately upon re-entry after blasting and before going to work at the start of each shift. The presence of either gas would prompt an increased sampling frequency. Records of all samples taken, beginning on 9-14-79, will be reported in the semi-annual data reports (Table III G-4; 5 pages).

4) Colorado Division of Mines Inspection Reports. On these reports (#3 and #4), responsive comments are to be made on the disposition of the citations (abated or reason not abated). Data for May and June were reported in the previous data report, Development Monitoring Report No. 2. Table III G-5 contains the Metal and Non-Metal Mine Operator's Annual Report for 1978. Table III G-6 contains the Division of Mines Inspection Reports for the following dates: April 17, 1979 (not previously reported), July 10, 1979, August 30, 1979, and October 30, 1979 (4 pages plus 84 pages listing citations and disposition).

5) MSHA Inspection Reports. One inspection was conducted during this report period. That inspection report, dated May 8-10, 1979, was reported in the previous data report, Development Monitoring Report No. 2.

Quarterly Mine Employment and Coal Production Report

Table III G-1

U.S. Department of Labor
Mine Safety and Health Administration

Do Not Write In This Space

O.M.B. No. 44-R1761; Approval Expires December 1982

This report is required by law (30 U.S.C. § 813; 30 C.F.R. Part 50). Failure to report can result in the institution of a civil action for relief under 30 U.S.C. § 818 respecting an operator of a coal or other mine, and assessment of a civil penalty against an operator of a coal or other mine under 30 U.S.C. § 820 (a). An individual who, being subject to the Federal Mine Safety and Health Act of 1977 (30 U.S.C. § 801 et seq.) knowingly makes a false statement in any report can be punished by a fine of not more than $10,000 or by imprisonment for not more than 5 years, or both, under 30 U.S.C. § 820 (f). Any individual who knowingly and willfully makes any false, fictitious, or fraudulent statements, conceals a material fact, or makes a false, fictitious, or fraudulent entry, with respect to any matter within the jurisdiction of any agency of the United States can be punished by a fine of not more than $10,000, or imprisoned for not more than 5 years, or both, under 18 U.S.C. § 1001.

1. Fill out this form as completely as possible and return the first sheet of this report to →
2. If it is necessary to make any address changes, indicate corrected information on this form.
3. This preaddressed form is only for the operation with I.D. number as shown. DO NOT use this form for any other operation. →
4. SAND AND GRAVEL operators report employment data under code 03 or 06 as appropriate, except for data on office workers which should be reported under code 99.
5. Only operators of coal mines should enter production data in column (4) below.

MSHA, Health and Safety Analysis Center
P.O. Box 25367, Federal Center
Denver, Colorado 80225

0503140

DATE REPORT COMPLETED

MO. DAY YR.

FOR 2nd QUARTER
(April - June)

MAIL BEFORE

▶ If this report is being submitted by a contractor or lessee check here ☐

IF ANY INFORMATION BELOW IS INCORRECT PLEASE ENTER CORRECT INFORMATION HERE:

COUNTY

OPERATION NAME

OPERATING COMPANY NAME AND ADDRESS

MESA I.D. NO. COUNTY

OPERATION NAME

OPERATING COMPANY NAME AND ADDRESS

1. Persons Working, Employee-Hours, and Coal Production

(1) Operation Sub Unit Code(s) previously reported:		Code	(2) Average number of persons working during quarter	(3) Total employee-hours worked during the quarter	(4) Production of clean coal during quarter, (short tons)
Underground Mine	Underground	01			
	Surface Shops, Yards, Etc.	02			
Surface Mine (Including shops and yards)	Strip, Open Pit, or Quarry	03			
	Auger (Coal Mine Only)	04			
	Culm Bank or Refuse Pile (coal mine only)	05			
	Dredge	06			
	Other (Metal/Non-metal Surface Mining)	12			
	Independent Shops or Yards	17			
Mill Operations, Preparation Plant, or Breaker (Include associated shops and yards)		30			
Office (professional and clerical workers at the mine or plant)		99	29	14,867	

III G-1 2

2. Other Reportable Data

How many MSHA reportable injuries or illnesses did you have this quarter? 0

Person to be contacted regarding this report	Name	Title	Phone
	Don I. McClung	Safety Supervisor	242-8463

Quarterly Mine Employment and Coal Production Report

Table III G-1

U.S. Department of Labor
Mine Safety and Health Administration

Do Not Write In This Space

O.M.B. No. 44-R1761; Approval Expires December 1982

This report is required by law (30 U.S.C. § 813; 30 C.F.R. Part 50). Failure to report can result in the institution of a civil action for relief under 30 U.S.C. § 818 respecting an operator of a coal or other mine, and assessment of a civil penalty against an operator of a coal or other mine under 30 U.S.C. § 820 (a). An individual who, being subject to the Federal Mine Safety and Health Act of 1977 (30 U.S.C. § 801 et seq.) knowingly makes a false statement in any report can be punished by a fine of not more than $10,000 or by imprisonment for not more than 5 years, or both, under 30 U.S.C. § 820 (f). Any individual who knowingly and willfully makes any false, fictitious, or fraudulent statements, conceals a material fact, or makes a false, fictitious, or fraudulent entry, with respect to any matter within the jurisdiction of any agency of the United States can be punished by a fine of not more than $10,000, or imprisoned for not more than 5 years, or both, under 18 U.S.C. § 1001.

1. Fill out this form as completely as possible and return the first sheet of this report to →
2. If it is necessary to make any address changes, indicate corrected information on this form.
3. This preaddressed form is only for the operation with I.D. number as shown. DO NOT use this form for any other operation.
4. SAND AND GRAVEL operators report employment data under code 03 or 06 as appropriate, except for data on office workers which should be reported under code 99.
5. Only operators of coal mines should enter production data in column (4) below.

MSHA, Health and Safety Analysis Center
P.O. Box 25367, Federal Center
Denver, Colorado 80225

0503140 M
1 0510 C03

DATE REPORT COMPLETED
MO. DAY YR.

FOR THIRD QUARTER
(JUL THRU SEP)

MAIL BEFORE
OCTOBER 15 1979

▶ If this report is being submitted by a contractor or lessee check here ☐

IF ANY INFORMATION BELOW IS INCORRECT PLEASE ENTER CORRECT INFORMATION HERE:

COUNTY

OPERATION NAME

OPERATING COMPANY NAME AND ADDRESS

MESA I.D. NO. 0503140
COUNTY RIO BLANCO

OPERATION NAME
C B TRACT SHALE OIL VENTURE

OPERATING COMPANY NAME AND ADDRESS
OCCIDENTAL OIL SHALE INC
PICEANCE CREEK RD
RIFLE CO 81650

1. Persons Working, Employee-Hours, and Coal Production

(1) Operation Sub Unit Code(s) previously reported: 01 02 99		Code	(2) Average number of persons working during quarter	(3) Total employee-hours worked during the quarter	(4) Production of clean coal during quarter, (short tons)
Underground Mine	Underground	01			
	Surface Shops, Yards, Etc.	02			
Surface Mine (including shops and yards)	Strip, Open Pit, or Quarry	03			
	Auger (Coal Mine Only)	04			
	Culm Bank or Refuse Pile (coal mine only)	05			
	Dredge	06			
	Other (Metal/Non-metal Surface Mining)	12			
	Independent Shops or Yards	17			
Mill Operations, Preparation Plant, or Breaker (Include associated shops and yards)		30			
Office (professional and clerical workers at the mine or plant)		99	29	14,429	

III G-3

2. Other Reportable Data

How many MSHA reportable injuries or illnesses did you have this quarter? 0

Person to be contacted regarding this report	Name	Title	Phone
	Don I. McClung	Safety Supervisor	242-8463

Table III G-2

C-b TRACT MONTHLY INJURY REPORT - 1979

Summary of Man-Hours Worked	Hours
January, 1979	
Contractors	53,420
Occidental	3,693
February, 1979	
Contractors	51,860
Occidental	4,444.7
March, 1979	
Contractors	44,858
Occidental	4,311
April, 1979	
Contractors	37,619
Occidental	5,254.5
May, 1979	
Contractors	28,841
Occidental	4,521.5
June, 1979	
Contractors	20,960
Occidental	5,091
July, 1979	
Contractors	32,899
Occidental	4,205
August, 1979	
Contractors	38,274
Occidental	5,080
September, 1979	
Contractors	38,579
Occidental	5,144
October, 1979	
Contractors	38,720
Occidental	6,464.5

Occidental has had no lost-time accidents through October, 1979.

During the period of this report, the Contractors had two lost-time accidents. These accidents increased the total number of lost-time accidents in 1979 to three.

The accident frequency rate for the contractors through October, 1979 was:

$$4 \frac{\text{reported accidents} \times 200{,}000}{434{,}239.2 \text{ man-hours exposed}} = 1.84$$

Table III G-3

MANHOURS AND ACCIDENT DATA FOR TRACT C-B

	OCCIDENTAL									CONTRACTOR									OXY & CONTR.								
	MAN HOURS			ACCIDENTS				I.R.		MAN HOURS			ACCIDENTS				I.R.		MAN HOURS			ACCIDENTS				I.R.	
	MONTH	Y.T.D.	QRTR	mon RA	ytd RA	mon LTA	ytd LTA	mon IR	ytd IR	MONTH	Y.T.D.	QRTR	mon RA	ytd RA	mon LTA	ytd LTA	mon IR	ytd IR	MONTH	Y.T.D.	QRTR	mon RA	ytd RA	mon LTA	ytd LTA	mon IR	ytd IR
JAN	3693	3693		0	0	0	0	0	0	53,420	53,420		0	0	0	0	0	0	57,113	57,113		0	0	0	0	0	0
FEB	4444.7	8137.7		0	0	0	0	0	0	51,860	105,280		1	1	1	1	3.85	1.89	56,304.7	113,417.7		1	1	1	1	3.55	1.76
MAR	4311	12,448.7	12,448.7	0	0	0	0	0	0	44,858	150,138	150,138	0	1	0	1	0	1.33	49,169	162,586.7	162,586.7	0	1	0	1	0	1.23
APR	5254.5	17,703.2		0	0	0	0	0	0	37619	187757		0	1	0	1	0	1.06	42,873.5	205,460.2		0	1	0	1	0	.97
MAY	4521.5	22,224.7		0	0	0	0	0	0	28,841	216,598		0	1	0	1	0	.92	33,362.5	238,822.7		0	1	0	1	0	.83
JUN	5091	27,315.7	14,867	0	0	0	0	0	0	20,960	237,558	87,420	0	1	0	1	0	.84	26,051	264,873.7	102,287	0	1	0	1	0	.75
JUL	4205	31,520.7		0	0	0	0	0	0	32,899	270,457		0	1	0	1	0	.73	37,104	301,977.7		0	1	0	1	0	.66
AUG	5080	36,600.7		0	0	0	0	0	0	38,274	308,731		2	3	1	2	10.45	1.94	43,354	345,331.7		2	3	1	2	9.22	1.73
SEP	5144	41,744.7	14,429	0	0	0	0	0	0	38579	347,310	109,752	1	4	1	3	5.18	2.30	43,723	389,054.7	124,181	1	4	1	3	4.57	2.05
OCT	6464.5	48,209.2		0	0	0	0	0	0	38,720	386,030		0	4	0	3	0	2.07	45,184.5	434,239.2		0	4	0	3	0	1.84
NOV																											
DEC																											

DATE 9-14-79

SAMPLE # 270 BOTTLE # _____

LOCATION pump station

ELEVATION _____ TIME 11:15 A.M.

COLLECTED BY _____

ANALYSED BY Al Wood

DATE 9-21-79 TIME 13:20

O_2	21.301 %
CO	— %
CO_2	1.034 %
AR	.934 %
N_2	76.731 %
CH_4	— %
H_2S	— %
OTHER	— %
	_____ %
	_____ %
	_____ %
TOTAL	100.00 %

C-b TRACT GAS ANALYSIS

9-24-79

DATE ~~9-14-79~~

SAMPLE # _____ BOTTLE # _____

LOCATION 270 pump sta.

ELEVATION _____ TIME 11:15 A.M.

COLLECTED BY _____

ANALYSED BY Al Wood

DATE 10-9-79 TIME 12:50

O_2	20.343 %
CO	0 %
CO_2	0.201 %
AR	0.909 %
N_2	78.547 %
CH_4	0 %
H_2S	0 %
OTHER	0 %
	_____ %
	_____ %
	_____ %
TOTAL	100.00 %

C-b TRACT GAS ANALYSIS

DATE 9-25-79

SAMPLE # _____ BOTTLE # _____

LOCATION V/E Shaft

ELEVATION 5825 TIME _____

COLLECTED BY _____

ANALYSED BY Al Wood

O_2	20.995 %
CO	0 %
CO_2	0.417 %
AR	0.915 %
N_2	77.583 %
CH_4	0.089 %
H_2S	0 %
OTHER	_____ %
	_____ %
	_____ %
	_____ %

Table III G-4 C-b TRACT GAS ANALYSIS

DATE 10-2-79

SAMPLE # _____ BOTTLE # _____

LOCATION ~~Hole~~ #1 121' depth HOLE #1

ELEVATION 5795 TIME _____

COLLECTED BY _____

ANALYSED BY Al Wood

DATE 10-9-79 TIME 11:45

O_2	19.942 %
CO	0 %
CO_2	0.208 %
AR	0.923 %
N_2	78.927 %
CH_4	0 %
H_2S	0 %
OTHER	0 %
	_____ %
	_____ %
	_____ %
TOTAL	100.00 %

C-b TRACT GAS ANALYSIS

DATE 10-2-79

SAMPLE # _____ BOTTLE # _____

LOCATION production shaft East Drift (approx 30' from shaft perimenter at face of Drift)

ELEVATION _____ TIME 5:45 ppm

COLLECTED BY _____

(Rock bolting at Time of sample)

ANALYSED BY Al Wood

DATE 13:45 TIME 10-10-79

O_2	20.190 %
CO	0 %
CO_2	0.345 %
AR	0.901 %
N_2	78.564 %
CH_4	0 %
H_2S	0 %
OTHER	0 %
	_____ %
	_____ %
	_____ %
TOTAL	100.00 %

C-b TRACT GAS ANALYSIS

DATE 10-7-79

SAMPLE # _____ BOTTLE # _____

LOCATION V/E shaft

Sample Taken after drilling hole #3 40' making 60 GPM

ELEVATION 5795 TIME 11:30 A.M.

COLLECTED BY _____

ANALYSED BY Al Wood

O_2	20.632 %
CO	0 %
CO_2	0.777 %
AR	0.910 %
N_2	77.680 %
CH_4	0 %
H_2S	0 %
OTHER	0 %
	_____ %
	_____ %
	_____ %

DATE 10-9-79

MPLE # _____ BOTTLE # _____

LOCATION V/E shaft Bottom
(Taken as hole #6 was drilled To 40')

ELEVATION _____ TIME 3:00 PM

COLLECTED BY _____

ANALYSED BY Al Wood

DATE 10-16-79 TIME 14:45

O_2	20.684	%
CO	0	%
CO_2	.066	%
AR	.883	%
N_2	78.369	%
CH_4	0	%
H_2S	0	%
OTHER	0	%
		%
		%
		%
TOTAL	100.00	%

C-b TRACT GAS ANALYSIS

DATE 10-17-79

SAMPLE # _____ BOTTLE # _____

LOCATION N/E shaft
D.H #3 @ 125 feet

ELEVATION 5795 TIME 08:00 p.m

COLLECTED BY _____

ANALYSED BY Al Wood

TE 10-18-79 TIME 10:00

O_2	21.362	%	
CO	0.003	%	30ppm
CO_2	0.745	%	
AR	1.014	%	
N_2	76.877	%	
CH_4	0	%	
H_2S	0	%	
OTHER		%	
		%	
		%	
		%	
TOTAL	100.00	%	

C-b TRACT GAS ANALYSIS

DATE 10-23-79

SAMPLE # _____ BOTTLE # _____

LOCATION V/E Shaft
(with hole #9 100' open)

ELEVATION 5795 TIME 03:45

COLLECTED BY _____

O_2	22.547	%
CO	0	%
CO_2	0.187	%
AR	1.000	%
N_2	76.266	%
CH_4	0	%
H_2S	0	%
OTHER	0	%
		%
		%

DATE 11-5-79

SAMPLE # _____ BOTTLE # _____

LOCATION V/E Shaft
(931 Mucken operation)

ELEVATION 6097 ft TIME 10:50 A.M

COLLECTED BY _____

ANALYSED BY Al Wood

DATE 11-14-79 TIME 12:32

O_2	19.528 %
CO	— %
CO_2	3.567 %
AR	0.959 %
N_2	75.945 %
CH_4	— %
H_2S	— %
OTHER	— %
	_____ %
	_____ %
	_____ %
TOTAL	100.00 %

C-b TRACT GAS ANALYSIS

DATE 11-5-79

SAMPLE # _____ BOTTLE # _____

LOCATION V/E Shaft
(931 Mucker operation)

ELEVATION 6097 TIME 11:10

COLLECTED BY _____

ANALYSED BY Al Wood

DATE 11-14-79 TIME 13:26

O_2	20.332 %
CO	— %
CO_2	0.944 %
AR	1.096 %
N_2	77.735 %
CH_4	— %
H_2S	— %
OTHER	— %
	_____ %
	_____ %
	_____ %
TOTAL	100.00 %

C-b TRACT GAS ANALYSIS

DATE 11-5-79

SAMPLE # _____ BOTTLE # _____

LOCATION V/E Shaft
(Concrete cycle

ELEVATION 5795 TIME 10:20 A.M.

COLLECTED BY _____

ANALYSED BY Al Wood

O_2	20.574 %
CO	— %
CO_2	0.209 %
AR	1.008 %
N_2	78.409 %
CH_4	— %
H_2S	— %
OTHER	— %
	_____ %
	_____ %

DATE 11-26-79

SAMPLE # _____ BOTTLE # _____

LOCATION 270' sta. - mid shaft V/E shaft

ELEVATION _____ TIME _____

COLLECTED BY _____

ANALYSED BY Al Wood

DATE 12-4-79 TIME 12:40

O_2	21.274 %
CO	— %
CO_2	0.046 %
AR	1.012 %
N_2	77.574 %
CH_4	0.094 %
H_2S	— %
OTHER	— %
	%
	%
	%
TOTAL	100.00 %

DATE 11-30-79

SAMPLE # _____ BOTTLE # _____

LOCATION Electrical Vault near back at face of V/E shaft 960' sta.

ELEVATION _____ TIME 07:55

COLLECTED BY _____

ANALYSED BY Al Wood

DATE 12-4-79 TIME 11:35

O_2	21.671 %
CO	— %
CO_2	0.028 %
AR	0.990 %
N_2	77.285 %
CH_4	— %
H_2S	— %
OTHER	— %
	%
	%
	%
TOTAL	100.00 %

DATE 11-30-79

SAMPLE # _____ BOTTLE # _____

LOCATION At Bubble's in floor of sump At 960' sta.

ELEVATION _____ TIME 07:50 PM

COLLECTED BY W.D.L.

ANALYSED BY Al Wood

DATE 12-4-79 TIME 10:20

O_2	21.270 %
CO	— %
CO_2	0.155 %
AR	1.002 %
N_2	77.519 %
CH_4	.1053 %
H_2S	— %
OTHER	— %
	%
	%
	%
TOTAL	100.00 %

Table III G-5

RECEIVED DEC 26 1978 1422

STATE OF COLORADO

DIVISION OF MINES

DEPARTMENT OF NATURAL RESOURCES
1313 Sherman Street
Denver, Colorado 80203

NORMAN R. BLAKE
Director

METAL & NONMETAL MINE OPERATOR'S ANNUAL REPORT

for the Year 1978

THIS COPY FOR YOUR FILES

Number 443
County Rio Blanco
Mining District

Name of Operation ~~C-B TRACT~~ Kind of Operation Mine (Mine, Mill, Quarry, etc.)

Operator ~~Ralph M. Parsons Company~~ Ownership ( ) Lease ( ) Contractor (✓)

Address (Local) ~~Box 1111, Rifle 81650~~ Main Office Address Pasadena, Ca.

Owner Occidental Oil Owner Address Grand Junction, Co

Location of Property Rio Blanco County, Co.

Corporation ( ) Partnership ( ) Individual ( )
If a corporation, give name of state in which incorporated

President Partner or Individual

Vice-President Partner

Secretary Partner

Treasurer Partner

Manager or Person in Charge Address
Telephone Number

Producing ( ) Developing (✓) Exploration ( ) Part Time ( ) Idle ( ) Rehabilitation ( )

Principal Products Oil

STABILIZATION AND RECLAMATION

Total Acres Mined Acres Mined During Year Acres Reclaimed During Year
Dump or Stockpile Area (acres) Dump or Stockpile Area Reclaimed (acres)

PRODUCTION FOR THE YEAR

Crude Tonnage (tons, yards, pounds) Produced during the Year 0 Value $ 0

List products separately, i.e., Gold, Silver, Copper, Lead, Zinc, or other minerals, Clay, Sand, Gravel, Stone, etc.

Product (oz., lbs., tons) Value $
Product (oz., lbs., tons) Value $
Product N/A (oz., lbs., tons) N/A Value $ N/A
Product (oz., lbs., tons) Value $
Product (oz., lbs., tons) Value $

LABOR STATISTICS

No. of Days Operated during the year 264 Average No. of Employees: Undergd. Surface 144

No. of Man-shifts (8 hours each) during the Year: Underground Surface 3,454 Man-hours Worked 276,165

Total Inspection Fee $2,101.00 No. of Lost-time Accidents during the Year 2 No. of Fatalities 0

Compensation Insurance Carrier Hartford Accident and Indemnity Co.

Date of this report 2/26/79 Signed George A Glass

By:

Title Safety Supervisor

This report must be submitted to the Colorado Division of Mines by March 1, 1979.

CDM-8 (Rev. 10/76)

STATE OF COLORADO

NORMAN R. BLAKE
Director

1313 Sherman St.
Denver, Colorado 802
Telephone: 839-3401

DIVISION OF MINES
Department of Natural Resources

INSPECTION REPORT

Date 4/17/79 Number A-27 County Rio Blanco

C-B Oil Shale Venture
Name of Operation

mine
Kind of Operation: Mine, Mill, Quarry, etc.

Ralph Parsons Co.
Name of Operator or Contractor

P.O. Rifle, Colorado
Operator's Address

Occidental Oil Shale Inc.
Name of Owner or Possessor

Same address
Owner's Address

Curt Deitrich 242-8463
Name of Person in Charge

P.O. Rifle, Colo. 81650
Address and Telephone Number of Person in Charge

Colo. State Fund
Name of Compensation Insurance Company

Shale Oil Products
Products (List products or intended products)

Total men employed 40 Underground 0 Surface ____ Hours 24 Monthly Production ____

☐ Producing ☑ Development ☐ Part-Time ☐ Exploration ☐ Idle Other ____

Number of accidents to date this year 1 Were they reported to the Division of Mines? yes
Location of Property Sec. 1, T 1 S, R 99 W 6th P.M.

Date of last inspection 3/12/79 All references are to Bulletin 20

Having completed an inspection of the above named operation, I find that the items listed below must be given immediate attention in order to comply with Colorado Statutes and Division of Mines Rules and Regulations, CRS 1973, 34-40-113.

1. The electrical outlet boxes on the 1st stoping mat deck in the hoist shaft shall be of a water tight construction-Sec. 50, Part 11 (57.11-9) 4/12/79
2. The sides on the sink collar of the service shaft shall protected in such a manner that foreign objects cannot fall into the shaft-Sec. 140, Part 6. (57.17-100) 4/12/79
3. Welding goggles shall be worn by employees during cutting operations with torches (Service shaft & intake portal area) Sec. 30-167, Part 10 (57.15-7) Repeated
4. Safety glasses shall be worn by employees working on the project (Service shaft area) - Sec. 27, Para. 3 (57.15-4) 4/12/79
5. The cover plate shall be put back on the lo switch outlet box in the hoist house-Sec. 50, Part 35 (57.12-32) 4/12/79

Remarks:

Have former recommendations been complied with? yes

Persons accompanying Inspector: Title:
Lonnie Wade Saf. Eng. Supv.
Cecil Spears Safety Asst.

Cooperation received Good

Metal Mining Inspector - District (3)

I have received a copy of this report for the Operator:

Address

Signed: Title: Telephone Number

CDM 1 (Rev. 10-77)

READ, KNOW AND PRACTICE YOUR SAFETY RULES

STATE OF COLORADO

NORMAN R. BLAKE
Director

1845 Sherman St.
Denver, Colorado 80203
Telephone: 892-3401

DIVISION OF MINES
Department of Natural Resources

INSPECTION REPORT

Date 7/10/79 Number A-68 County Rio BLANCO

C.b. OIL SHALE VENTURE
Name of Operation

MINE - V.E. SHAFT
Kind of Operation: Mine, Mill, Quarry, etc.

RALPH PARSONS CO.
Name of Operator or Contractor

Box 111, RIFLE, COLORADO
Operator's Address

OCCIDENTAL OIL SHALE INC.
Name of Owner or Possessor

Box 2687, GRAND JCT. COLO. 81501
Owner's Address

C.J. DEITRICH 242-8463
Name of Person in Charge

Box 111 RIFLE, COLORADO
Address and Telephone Number of Person in Charge

COLO. STATE COMP.
Name of Compensation Insurance Company

SHAFT DEVELOPMENT
Products (List products or intended products)

Total men employed 190 Underground 60 Surface 120 Hours 24 Monthly Production —

☐ Producing ☑ Development ☐ Part-Time ☐ Exploration ☐ Idle Other

Number of accidents to date this year 1 Were they reported to the Division of Mines? YES

Location of Property SEC. 1, 2, 18, R-96W, TRACT C-6

Date of last inspection 5/16/79 All references are to Bulletin 20

Having completed an inspection of the above named operation I find that the items listed below must be given immediate attention in order to comply with Colorado Statutes and Division of Mines Rules and Regulations, CRS 1973, 34-40-113.

1. EXPLOSIVES TRANSPORTED TO WORKING PLACES MUST NOT BE LEFT UNATTENDED FROM THE TIME THEY LEAVE THE DISTRIBUTING MAGAZINE UNTIL THEY ARRIVE AT THE WORKING FACE. - SEC. 60, PARA. 20, 7/10/79 - (EXPLOSIVES LEFT IN UNATTENDED TRANSPORTATION BOX BY SHAFT hoist hoist V.E.) - 7/10/79

2. BOXES WITH EXPLOSIVES OR STORAGE BOXES SHALL BE MARKED WITH THE WORDS EXPLOSIVES, DANGEROUS. - SEC. 59, PARA. 22 (57.6-22) 7/10/79

3. THE SMALL AIR JUGGER HOSES ON THE V.E. SHAFT WORK DECK SHALL BE PROVIDED WITH A SAFETY CHAIN OR SUITABLE LOCKING DEVICE. SEC. 9, PARA. 3 (57.13-21) 7/10/79

4. EMPLOYEES SHALL KEEP ALL POINTED & LOOSE OBJECTS OFF FROM THE V.E SHAFT WORK DECK. - (Long BOLT & pointed BAR laying loose on deck) - SEC. 52, PARA. 4. (57.3-9) - ABATED 7/10/79

Remarks (INSPECTION OF V.E. SHAFT ONLY)

Have former recommendations been complied with?

Persons accompanying inspector: Cody SPEARS, RAUL PENDLETON — Title: SAFETY INSP. ORY., SHAFT SUPT. GILBERT Corp. — Copy of report received: Good

Gerald W. Alderman
Metal Mining Inspector - District (3)
R1, Box 136B, Buena Vista, Colo. 81211
Address
Telephone Number 395-2715

I have received a copy of this report for the Operator

Signed: R.A Rusch Title: Mgr

CDM 1 (Rev. 1-76)

READ, KNOW AND PRACTICE YOUR SAFETY RULES

NORMAN R. BLAKE
Director

1845 Sherman St.
Denver, Colorado 80
Telephone: 892-3401

DIVISION OF MINES
Department of Natural Resources

INSPECTION REPORT

Date 8/30/79 Number A-82 County Rio BLANCO

C b oil SHALE VENTURE
Name of Operation

SURFACE - HOISTING FACILITIES
Kind of Operation: Mine, Mill, Quarry, etc.

RALPH PARSONS CO
Name of Operator or Contractor

BOX 111 RIFLE, COLORADO
Operator's Address

OCCIDENTAL OIL SHALE INC
Name of Owner or Possessor

BOX 2087 GRAND JCT COLO 81501
Owner's Address

C J. DEITRICH 242-8463
Name of Person in Charge

BOX 111, RIFLE COLORADO
Address and Telephone Number of Person in Charge

COLO. STATE COMP
Name of Compensation Insurance Company

SHAFT DEVELOPMENT
Products (List products or intended products)

Total men employed 180 Underground 85 Surface 95 Hours 24 Monthly Production ——

☐ Producing ☑ Development ☐ Part-Time ☐ Exploration ☐ Idle Other ——

Number of accidents to date this year 3 Were they reported to the Division of Mines? YES

Location of Property SEC. 12 T 1S, R-96W TRACT C-b

Date of last inspection 7/10/79 8/28/79 All references are to Bulletin 20

Having completed an inspection of the above named operation, I find that the items listed below must be given immediate attention in order to comply with Colorado Statutes and Division of Mines Rules and Regulations, CRS 1973, 34-40-113.

1. IN hoisting OR LOWERING MEN IN SHAFTS WHERE BUCKETS ARE USED EXCEPT IN CASE OF APPREHENDED DANGER OR EMERGENCY, THE hoisting SPEED SHALL AT NO TIME EXCEED TWO hundred FIFTY (250) FEET PER MINUTE. - SEC. 86, PARA. 12. 8/30/79

2. THE DAY STORAGE EXPLOSIVE MAGAZINES SHALL BE MOVED TO A SAFER LOCATION which SERVICE THE production & SERVICE SHAFT. - SEC. 59 - PART 18. (57.6-20) 8/30/79 - ABATED

Remarks: NOTE ON CHART hoist IS NOT ADEQUATE FOR LOW F.P.M. ON 1ST FLOOR

Have former recommendations been complied with? YES

Persons accompanying Inspector: GEORGE BEASLEY, CODY SPEARS, JEFF CLAYTON, BOB RESTIVO

Title: MINE SAFETY INSPECTOR, C.D.M.G. Civil Engineer, (MINE MGR.)

Cooperation received Good

Metal Mining Inspector — District (3) 7211
P.O. Box 126 Eagle, Colo 81631

I have received a copy of this report for the Operator:

Signed: ——

Title: ——

Address

Telephone Number 328-2715

CDM I (Rev. 1-76)

READ, KNOW AND PRACTICE YOUR SAFETY RULES

NORMAN R. BLAKE
Director

1313 Sherman St.
Denver, Colorado 80203
Telephone: 839-3401

DIVISION OF MINES
Department of Natural Resources

INSPECTION REPORT

Date 10/30/79 Number A-108 County Rio Blanco

C-b oil shale ~~mine~~ / Mine Shaft - Development
Name of Operation / Kind of Operation: Mine, Mill, Quarry, etc.

Ralph Parson's Co. / Box 111, Rifle, Colorado
Name of Operator or Contractor / Operator's Address

Occidental Oil Shale Inc. / Box 2687 Grand Jct, Colorado 81501
Name of Owner or Possessor / Owner's Address

C.J. Deitrich 242-8463 / Box 111, Rifle, Colorado
Name of Person in Charge / Address and Telephone Number of Person in Charge

Colo. State Comp. / Shaft Development
Name of Compensation Insurance Company / Products (List products or intended products)

Total men employed 180 Underground 85 Surface 95 Hours 24 Monthly Production - - -

☐ Producing ☑ Development ☐ Part-Time ☐ Exploration ☐ Idle Other

Number of accidents to date this year 3 Were they reported to the Division of Mines? YES

Location of Property: Sec. 12, 1S, R-96W, Tract C-b

Date of last inspection 8/30/79 All references are to Bulletin 20

Having completed an inspection of the above named operation, I find that the items listed below must be given immediate attention in order to comply with Colorado Statutes and Division of Mines Rules and Regulations, CRS 1973, 34-40-113.

1. The Bc Fire Extinguisher shall be replaced on the Track Loader in the production shaft - Sec. 64, Part 8. 10/30/79 - Abated
2. A fire extinguisher shall be provided at the V.E. shaft hoist shaft house - Sec. - 64, Part 1. (57.4-22) 10/31/79 - Abated
3. A substantial platform walkway shall be provided on the pump repair trailer rear exit - Sec. 114, Part 6. (57.11-2) 10/31/79
4. Goggles shall be used when conducting cutting operations with the torches. - Sec. - 167, Part 10. (57.15-7) - Abated - (V.E. shaft headworks)

Remarks:

Have former recommendations been complied with? YES

Persons accompanying Inspector:	Title:	Cooperation received
George Glass	Parsons Safety Supv.	Good
Bob Reigh	Gilbert Bldg. mngr.	Gerald W. Ackerman

Metal Mining Inspector – District (3)
Rifle Office, Bldg. 202, Grand Valley, Colo. 81611
Address

I have received a copy of this report for the Operator:

Signed: George Glass Title: Safety Supervisor Telephone Number 945-2715

READ, KNOW AND PRACTICE YOUR SAFETY RULES

CDM 1 (Rev. 10-77)

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78) No 325429

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE) DATE 08/01/79 (MO/DA/YR) TIME 1042 (24 HR CLOCK)

SERVED TO A.N. Lehrupp, Shaft Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-B Tract MINE I.D. 05-03149- ____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a

VIOLATION OF SECTION ____ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0012-00013

TYPE OF INSPECTION 001 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE A permanent splice in a 69kv 500 cable, located at the Switch Board near the C-B shaft Collar was not mechanically strong and conductive as the original insulated to a degree of the original, sealed to exclude moisture, protected from damage as near as possible to that of the original, including grid bonding to the outer cable jacket.

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. ____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/02/79 (MO/DA/YR) TIME 0900 (24 HR CLOCK) SIGNATURE Ronald J. Konowden 1206 (AR)

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME ____ (24 HR CLOCK) SIGNATURE ____ (AR) ☐ SEE SUBSEQUENT ACTION SHEET

III 6 - 16

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 325430

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE)

DATE 08/01/79 (MO/DA/YR) TIME 1117 (24 HR CLOCK)

SERVED TO A.N. Schnopp, Shaft Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-6 Tract MINE I.D. 05-03149-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a

VIOLATION OF SECTION ____ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0012-00030

TYPE OF INSPECTION 001 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE An orange colored wire was being used as the ground conductor, in lieu of the Nationally recognized green or bare colored wire, in the 120 volt outlet circuit at the V & E dry.

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. ____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/08/79 (MO/DA/YR) TIME 1200 (24 HR CLOCK) SIGNATURE Ronald J. Snowden 0656 AR

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME ____ (24 HR CLOCK) SIGNATURE ____ AR ☐ SEE SUBSEQUENT ACTION SHEET

III G-17

III G-18

RDER

Safety and Health Act
Authorized Representa-
making an inspection or
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UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 326795

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE)

DATE 08/01/79 (MO/DA/YR) TIME 1420 (24 HR CLOCK)

SERVED TO Art Schnopp Shaft Supt OPERATOR Gilbert Corp. of Delaware

MINE C-6- Shale oil MINE I.D. 05-03147-___ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-A-_____

VIOLATION OF SECTION _____ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0015-00003

TYPE OF INSPECTION 001

☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE The Hostman working in and around the hoisthouse area was not wearing suitable protective footwear, at the Clark hoisthouse and around the hoist drum

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. _____ DATED ___/___/___ (MO/DA/YR)

TERMINATION DUE DATE 08/02/79 (MO/DA/YR) TIME 1400 (24 HR CLOCK) SIGNATURE Peggy E. Jofaya 0483 (AR)

ACTION TO TERMINATE

DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK) SIGNATURE ▶ ____ (AR)

☐ SEE SUBSEQUENT ACTION SHEET

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III 6 - 19

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 326794

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE) DATE 08/01/79 (MO/DA/YR) TIME 1340 (24 HR CLOCK)

SERVED TO Art Schnopp Shaft Supt. OPERATOR Gilbert Corp. of Delaware

MINE C. B. Tract MINE I.D. 05-03149-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-A-_____ VIOLATION OF SECTION _____ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0012-00032

TYPE OF INSPECTION 001 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE The cover plate on the clark hoist Control Panel was not in place, and the area was flooded with oil from an oil spill where the oil line broke underneath the Clark hoisthouse

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. _____ DATED ___/___/___ (MO/DA/YR)

TERMINATION DUE DATE 08/02/79 (MO/DA/YR) TIME 1400 (24 HR CLOCK) SIGNATURE Perfy C. Sybya 0483 (AR)

ACTION TO TERMINATE

DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK) SIGNATURE _____ (AR) ☐ SEE SUBSEQUENT ACTION SHEET

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 326793

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE)

DATE 08/01/79 (MO/DA/YR) TIME 0835 (24 HR CLOCK)

SERVED TO Art Schnopp Supt

OPERATOR Gilbert Corp of Delaware

MINE C-B- Shale pit

MINE I.D. 05-03149-___ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-A-___-___-___-___-___

VIOLATION OF SECTION ___-___-___ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0006-00001

TYPE OF INSPECTION 001

☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE Blasting Cap was observed outside the magazine on the ground, and was been stepped on, at the destubution storage magazine

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. ___ DATED ___/___/___ (MO/DA/YR)

TERMINATION DUE DATE 08/01/79 (MO/DA/YR) TIME 0835 (24 HR CLOCK) SIGNATURE Porfy C. Jabaya AR 0483

ACTION TO TERMINATE Cap was placed back inside the storage magazine

DATE 08/01/79 (MO/DA/YR) TIME 0835 (24 HR CLOCK) SIGNATURE Porfy C. Jabaya AR 0483

☐ SEE SUBSEQUENT ACTION SHEET

III 6 20

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 325431

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE)

DATE 08/01/79 (MO/DA/YR) TIME 1150 (24 HR CLOCK)

SERVED TO A.N. Schnopp, Shaft Supt.

OPERATOR Gilbert Corporation of Delaware

MINE C-B Incl

MINE I.D. 05-03149-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104a

VIOLATION OF SECTION ____ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0012-00067

TYPE OF INSPECTION 001

☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE The Generator Station transformers were surrounded by a fence that was not at least 3 feet from the transformer casings. The distance was 2 feet 2 inches.

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. ____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/15/79 (MO/DA/YR) TIME 1200 (24 HR CLOCK) SIGNATURE Ronald J. Renowden 0656 (AR)

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME ____ (24 HR CLOCK) SIGNATURE

____ (AR) ☐ SEE SUBSEQUENT ACTION SHEET

III 6-21

III 6-22

ORDER

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(COAL MINES ONLY)

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and substantially con-
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No 326793

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78) No 326796

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE) DATE 08/01/79 (MO/DA/YR) TIME 1530 (24 HR CLOCK)

SERVED TO _____ OPERATOR _____

MINE _____ MINE I.D. __-___-___.-__-___ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-A-_____ VIOLATION OF SECTION ___-__-__ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0015-00031

TYPE OF INSPECTION 001 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE Visitors at the mine were observed not wearing Self Rescuers when they were coming from underground, at the Skivice shaft

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. _____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/01/79 (MO/DA/YR) TIME 1540 (24 HR CLOCK) SIGNATURE Roy C Ighya 2483 (AR)

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME _____ (24 HR CLOCK) SIGNATURE ▶ ____ (AR) ☐ SEE SUBSEQUENT ACTION SHEET

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 325438

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE)

DATE 08/01/79 (MO/DA/YR) TIME 1500 (24 HR CLOCK)

SERVED TO A.N. Schnepp, Shaft Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-6 Tract MINE I.D. 05-03149-___ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a-_____

VIOLATION OF SECTION ____-__-__ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0c19-c0120

TYPE OF INSPECTION C01 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE The Alcan hoist overtravels had not been checked and logged for day shift 7/31/79. After checking the #1 side Upper overtravel, on request of the MSHA inspector, the hoist would not back out of the overtravel position.

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. _____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/02/79 (MO/DA/YR) TIME 0800 (24 HR CLOCK) SIGNATURE Ronald J Renowden 0656 (AR)

ACTION TO TERMINATE Daily contacts were found in the control circuit.

DATE 08/02/79 (MO/DA/YR) TIME 0915 (24 HR CLOCK) SIGNATURE Ronald J Renowden 0656 (AR) ☐ SEE SUBSEQUENT ACTION SHEET

III 6-23

III 6-24

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 325435

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE)

DATE 08/01/79 (MO/DA/YR) TIME 1330 (24 HR CLOCK)

SERVED TO J.N. Knapp Shaft Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-6 Tract MINE I.D. 05-03147-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a-_____ VIOLATION OF SECTION _____ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0012-00067

TYPE OF INSPECTION 001 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE The service hoist transformer enclosure was surrounded by a fence that was not at least 3 feet from the 13,800 volt transformer casing. The distance was 17 inches.

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. _____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/16/79 (MO/DA/YR) TIME 1200 (24 HR CLOCK) SIGNATURE Ronald J. Knowden 2656 (AR)

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME _____ (24 HR CLOCK) SIGNATURE ____ (AR) ☐ SEE SUBSEQUENT ACTION SHEET

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 325432

[X] CITATION (SEE REVERSE) [ ] ORDER OF WITHDRAWAL (SEE REVERSE)

DATE 08/01/79 (MO/DA/YR) TIME 1330 (24 HR CLOCK)

SERVED TO A.N. Schnopp, Shaft Supt.

OPERATOR Gilbert Corporation of Delaware

MINE C-6 Inactive

MINE I.D. 05-03149-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a

VIOLATION OF SECTION ____ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0012-00068

TYPE OF INSPECTION 001

[X] SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE The service Hoist transformer enclosure was not locked against unauthorized entry.

AREA OR EQUIPMENT

INITIAL ACTION [ ] NOTICE [ ] CITATION [ ] ORDER NO. ____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/01/79 (MO/DA/YR) TIME 1345 (24 HR CLOCK) SIGNATURE Ronald J. Knowles 0656 (AR)

ACTION TO TERMINATE Operator immediately took action to lock the enclosure.

DATE 08/01/79 (MO/DA/YR) TIME 1335 (24 HR CLOCK) SIGNATURE Ronald J. Knowles 0656 (AR) [ ] SEE SUBSEQUENT ACTION SHEET

III G-25

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 325434

[X] CITATION (SEE REVERSE) [ ] ORDER OF WITHDRAWAL (SEE REVERSE)

DATE 08/01/79 (MO/DA/YR) TIME 1445 (24 HR CLOCK)

SERVED TO A.N. Schnapp, Staff Supt

OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract

MINE I.D. 05-03149-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a-_____

VIOLATION OF SECTION ___-___-___ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0012-00020

TYPE OF INSPECTION 001

[X] SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE Dry wooden platforms, insulating mats or other non-conductive material was not present at the switch boards and power-control switches located in the Alcan Hoist room.

AREA OR EQUIPMENT

INITIAL ACTION [ ] NOTICE [ ] CITATION [ ] ORDER NO. ____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/06/79 (MO/DA/YR) TIME 1200 (24 HR CLOCK) SIGNATURE Ronald J. Renowden 0056 (AR)

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME ____ (24 HR CLOCK) SIGNATURE ____ ____ (AR) [ ] SEE SUBSEQUENT ACTION SHEET

III G-26

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 325433

[X] CITATION (SEE REVERSE) [ ] ORDER OF WITHDRAWAL (SEE REVERSE)

DATE 08/01/79 (MO/DA/YR) TIME 1435 (24 HR CLOCK)

SERVED TO A.N. Schnepp, Shaft Supt.

OPERATOR Gulf Coal Corporation of Delaware

MINE C-b Tract

MINE I.D. 05-03149- (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a

VIOLATION OF SECTION ____ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0012 00018

TYPE OF INSPECTION 001

[X] SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE. Principal power switches located at the production hoist Headframe switchboard were not labeled to show which units they control. Identification could not be made readily by location.

AREA OR EQUIPMENT

INITIAL ACTION [ ] NOTICE [ ] CITATION [ ] ORDER NO. ____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/06/79 (MO/DA/YR) TIME 1200 (24 HR CLOCK) SIGNATURE Ronald J. Knowlton 0656 (AR)

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME ____ (24 HR CLOCK) SIGNATURE ____ AR [ ] SEE SUBSEQUENT ACTION SHEET

III G-27

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325436-1 DATED 08/01/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☐ CONTINUATION ☒ CITATION ☐ ORDER DATE 08/02/79 (MO/DA/YR) TIME 1454 (24 HR CLOCK)

SERVED TO A.N. Schnopp, Shaft Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW This modification is to change the hoist check-out and logging of the overtravels. The correct date of not checking or logging was 7/31/79 in lieu of 8/1/79. The log was filled out for 8/1/79.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☐ TERMINATED ☒ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 001 SIGNATURE Ronald J Kenowden 0656 (AR)

III G-28

TION/ORDER

ral Mine Safety and Health Ac
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upon making an inspection o
the hereon designated mine o
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has existed, in the mine are
described hereon.

- Violation of the Act, man
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standard, rule, order o
regulation
- Unwarrantable failure
could significantly and sub
stantially contribute to
health or safety hazard
- Citation - exceeding respi
rable dust standard

ARD (COAL MINES ONLY)

- Notice to provide safe
- additional requirements nec
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III 6-29

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 326797

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE)

DATE 08/02/79 (MO/DA/YR) TIME 1100 (24 HR CLOCK)

SERVED TO George Glass Safety — OPERATOR Ralph M. Parsons Co.

MINE C-B State oil — MINE I.D. 05-03148-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-A-_____ — VIOLATION OF SECTION _____ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0012-00005

TYPE OF INSPECTION 001 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE They 110 extension Cord that run from the Marco Trailer to the Lunch Room was run over by rubber tired equipment the extension cord was exposed on top of ground and insulation was damaged

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. _____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/02/79 (MO/DA/YR) TIME 1400 (24 HR CLOCK) SIGNATURE Ralph E. Lykes 0483 AR

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME _____ (24 HR CLOCK) SIGNATURE ____ AR ☐ SEE SUBSEQUENT ACTION SHEET

III G-30

N/ORDER

Mine Safety and Health Ac
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hereon designated mine or
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is existed, in the mine area
escribed hereon.

Violation of the Act, mand
datory health or safety
standard, rule, order or
regulation

Unwarrantable failure -
could significantly and sub
stantially contribute to a
health or safety hazard

Citation - exceeding respi
rable dust standard

D (COAL MINES ONLY)

Notice to provide safe
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he judgment of an author
sentative to minimize haz
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or materials. Upon issuance
guard notice, the addition
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By checking the significant
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this violation will be con
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No 326798

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 326798

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE)

DATE 08/02/79 (MO/DA/YR) TIME 0930 (24 HR CLOCK)

SERVED TO Asst Schnopp Shaft Supt. OPERATOR Gilbert Corp of Delaware

MINE C. B. Shale Pit MINE I.D. 05-03149-[ ] (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-A

PART AND SECTION 57.0012-00025 VIOLATION OF SECTION ____ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

TYPE OF INSPECTION 001

☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE Loose ground wire connection was found outside the warehouse, from high voltage feed power line

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. ____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/02/79 (MO/DA/YR) TIME 1400 (24 HR CLOCK) SIGNATURE Ralph C Ingoya 0483 AR

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME ____ (24 HR CLOCK) SIGNATURE ▶

____ AR ☐ SEE SUBSEQUENT ACTION SHEET

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78) No 325438

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE) DATE 08/02/79 (MO/DA/YR) TIME 1005 (24 HR CLOCK)

SERVED TO A.K. Schnepp, Shaft Supt. OPERATOR Gilbert Corporation of Delware

MINE C-b Tract MINE I.D. 05-03149-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a-_____ VIOLATION OF SECTION ____-____-____ OF THE ACT OR

PART AND SECTION 57.0012-00020 OF TITLE 30 CODE OF FEDERAL REGULATIONS.

TYPE OF INSPECTION 001 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE Dry wooden platforms, insulating mats or other non-conductive material was not present at the switchboards and power control switches in the Falcontridge hoist house.

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. _____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/03/79 (MO/DA/YR) TIME 1600 (24 HR CLOCK) SIGNATURE Ronald J. Knowles 2656 (AR)

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME ____ (24 HR CLOCK) SIGNATURE ____ ____ (AR) ☐ SEE SUBSEQUENT ACTION SHEET

III G- 31

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-75)

No 325439

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE) DATE 08/02/79 (MO/DA/YR) TIME 1040 (24 HR CLOCK)

SERVED TO A.N. Schnupp, Shaft Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract MINE I.D. 05-03149-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a-____-____-____-____ VIOLATION OF SECTION ____-____-____ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.00-12-0030

TYPE OF INSPECTION 001 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE A 2/4 50 cable, contained in metallic piping was pulled out of the ground by a loader between the air intake and service shaft. The cable and pipe has been severely damaged, while the pipe has been pulled apart at the joint. The voltage present was 480 volt, 3 phase.

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. ____ DATED ____/____/____ (MO/DA/YR)

TERMINATION DUE DATE 08/16/79 (MO/DA/YR) TIME 1200 (24 HR CLOCK) SIGNATURE Ronald J. Renowden 6056 (AR)

ACTION TO TERMINATE

DATE ____/____/____ (MO/DA/YR) TIME ____ (24 HR CLOCK) SIGNATURE ____ ____ (AR) ☐ SEE SUBSEQUENT ACTION SHEET

III G-32

UNITED STATES DEPARTMENT OF LABOR -- MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (5-78)

No 325440

[X] CITATION (SEE REVERSE) [ ] ORDER OF WITHDRAWAL (SEE REVERSE)

DATE 08/02/79 (MO/DA/YR) TIME 1116 (24 HR CLOCK)

SERVED TO George Glass Safety Supv

OPERATOR Ralph M Parsons and Co.

MINE C-b Stable Oil Tanker

MINE I.D 05-03148-

TYPE OF ACTION (SEE REVERSE) 104-a-

VIOLATION OF SECTION ____ (CONTRACTOR)

PART AND SECTION 57.0012-00017

OF TITLE 30 CODE OF FEDERAL REGULATIONS.

TYPE OF INSPECTION 001

[X] SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE Two 3 phase 480 volt 15 & 40 amp circuit breakers for the Boiler and Ballu feedwater pump located at the Bitch plant control room were de-energized but not properly tagged and locked out, or other mobilities taken to prevent energizing the circuit without knowledge to those who might be working on them.

AREA OR EQUIPMENT

INITIAL ACTION [ ] NOTICE [ ] CITATION [ ] ORDER NO. ____ DATED ____/____/____ (MO/DA/YR)

TERMINATION DUE DATE 08/02/79 (MO/DA/YR) TIME 1600 (24 HR CLOCK) SIGNATURE Ronald J Renouth 0656 AR

ACTION TO TERMINATE Wires were removed and tape off the secondary side of the breakers.

DATE 08/02/79 (MO/DA/YR) TIME 1200 (24 HR CLOCK) SIGNATURE Ronald J Renouth 0656 AR

[ ] SEE SUBSEQUENT ACTION SHEET

III G - 33

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 325437

[X] CITATION (SEE REVERSE) [ ] ORDER OF WITHDRAWAL (SEE REVERSE) DATE 08/02/79 (MO/DA/YR) TIME 1605 (24 HR CLOCK)

SERVED TO A.N. Schnupp, Safety Supt. OPERATOR Dillon Corporation of Delaware

MINE C-b Road MINE I.D. 05-03149-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a-_____ VIOLATION OF SECTION ____-____-__ OF THE ACT OR

PART AND SECTION 57.0012-00018 OF TITLE 30 CODE OF FEDERAL REGULATIONS.

TYPE OF INSPECTION 001 [X] SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE The 4160 v. line switch for the Alcan hoist located in the Falconridge first house was not labeled to show which unit it controlled. The hoist houses were approximately 75 yards apart.

AREA OR EQUIPMENT

INITIAL ACTION [ ] NOTICE [ ] CITATION [ ] ORDER NO. _____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/02/79 (MO/DA/YR) TIME 1600 (24 HR CLOCK) SIGNATURE Ronald J Renowden 0656 AR

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME _____ (24 HR CLOCK) SIGNATURE

__ __ AR [ ] SEE SUBSEQUENT ACTION SHEET

III G-34

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 325443

[X] CITATION (SEE REVERSE) [ ] ORDER OF WITHDRAWAL (SEE REVERSE)

DATE 08/07/79 (MO/DA/YR) TIME 0510 (24 HR CLOCK)

SERVED TO Bob Keseigh, Project Manager

OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract

MINE I.D. 05-03149-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a-_____

VIOLATION OF SECTION ____-__-__ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0019-00120

TYPE OF INSPECTION 030

[X] SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE The Lilly Controller on the Boogeybay Hoist decelerating cams where "set back" 13/8" together with the brake regulating features, which was at 50% of profile at final hoisting limit.

AREA OR EQUIPMENT

INITIAL ACTION [ ] NOTICE [ ] CITATION [ ] ORDER NO. _____ DATED __/__/__ (MO/DA)

TERMINATION DUE DATE 08/22/79 (MO/DA/YR) TIME 1200 (24 HR CLOCK) SIGNATURE Ronald J Renowden 2656 (AR)

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME _____ (24 HR CLOCK) SIGNATURE ▶ ____ (AR) [ ] SEE SUBSEQUENT ACTION SHEET

III G- 35

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 325444

[X] CITATION (SEE REVERSE) [ ] ORDER OF WITHDRAWAL (SEE REVERSE)

DATE 08/07/79 (MO/DA/YR) TIME 0510 (24 HR CLOCK)

SERVED TO Bif Keough, Project Manager OPERATOR Gilbert Corporation of Delaware

MINE C-5 Tract MINE I.D. 05-03147-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a

VIOLATION OF SECTION ____-__-__ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0012-00032

TYPE OF INSPECTION 030

[X] SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE Two 4" x 4" junction boxes, located between the Lilly controllers on the Dorsey hoist were not provided with cover plates. There were numerous splices contained in the boxes and no repairs or testing were being performed out of the boxes.

AREA OR EQUIPMENT

INITIAL ACTION [ ] NOTICE [ ] CITATION [ ] ORDER NO. ____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/10/79 (MO/DA/YR) TIME 1200 (24 HR CLOCK) SIGNATURE Ronald J. Renowden 0656 (AR)

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME ____ (24 HR CLOCK) SIGNATURE ____ AR [ ] SEE SUBSEQUENT ACTION SHEET

III G- 36

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 327241

☐ CITATION (SEE REVERSE) ☒ ORDER OF WITHDRAWAL (SEE REVERSE) DATE 08/07/79 (MO/DA/YR) TIME 0415 (24 HR CLOCK)

SERVED TO Robert Resigh, Project Manager OPERATOR Gilbert Corp. of Delaware

MINE CB Tract MINE I.D. 05-03142-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 103-J-_____ VIOLATION OF SECTION 103-J- OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION _____

TYPE OF INSPECTION 030 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE A hoisting accident occurred with the Gooseberry hoist at the service shaft resulting in a fatal ~~accident~~ injury. This order issued to preserve any evidence which would assist in investigating the cause or causes thereof relating to the accident.

AREA OR EQUIPMENT Service shaft and hoisting equipment

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. _____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE __/__/__ (MO/DA/YR) TIME _____ (24 HR CLOCK) SIGNATURE Rodric M Breland AR 516

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME _____ (24 HR CLOCK) SIGNATURE ____ AR ☐ SEE SUBSEQUENT ACTION SHEET

III G-37

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 03 27242 1 DATED 08/07/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☒ CONTINUATION ☐ CITATION ☒ ORDER DATE 08/07/79 (MO/DA/YR) TIME 0420 (24 HR CLOCK)

SERVED TO Robert Resiegh, Project Manager OPERATOR Gilbert Corp of Delaware

MINE CB Tract MINE I.D. 05-03147-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW Authorized Representatives of the Secretary, Company Officials, Representatives of miners, State officials and other persons necessary to conduct the investigation. The operator of this mine shall obtain the approval of an authorized representative, in consultation with appropriate State Representatives, who is responsible for any plan to recover the service shaft and hoisting equipment and return affected areas to normal.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☐ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030

SIGNATURE Rodric M Breland 516 (AR)

III 6-38

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78) No 327243

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE) DATE 08/07/79 (MO/DA/YR) TIME 0600 (24 HR CLOCK)

SERVED TO Robert Keough, project manager OPERATOR Gilbert Corp of Delaware

MINE CB Tract 1 MINE I.D. 15-03149-__2__ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a-_____ VIOLATION OF SECTION ___-___-___ OF THE ACT OR

PART AND SECTION 57.__19-__129 OF TITLE 30 CODE OF FEDERAL REGULATIONS.

TYPE OF INSPECTION 030 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE The hoistman on swing shift on 8-6-79 did not make all secquired checks prior to operating the Grizzly hoist at the Jeservice shaft. The hoistman and an electrician were troubleshooting the hoist speed controls, and the hoist accelerated too quickly during an adjustment procedure. The upper declution cam was out of adjustment and allowed the crosshead and

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. _____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/09/79 (MO/DA/YR) TIME 0800 (24 HR CLOCK) SIGNATURE Kedric M Bullard 5716 AR

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME _____ (24 HR CLOCK) SIGNATURE ▶ ____ AR ☒ SEE SUBSEQUENT ACTION SHEET

III 6-9 39

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

NO 0327243-1 DATED 08/07/79 (MO/DA/YR)

☐ SUBSEQUENT ACTION ☒ CONTINUATION ☒ CITATION ☐ ORDER DATE 08/07/79 (MO/DA/YR) TIME 0600 (24 HR CLOCK)

SERVED TO Robert Keough, project manager OPERATOR Gilbert Corp. of Delaware

MINE CB Tract MINE I.D 05-03142-____ (CONTRACTO

JUSTIFICATION FOR ACTION CHECKED BELOW Muck bucket to pass the collars too fast for the shaftsman to stop the conveyance before hitting the crossbeams. The rope failed and dropped the bucket and crosshead into the shaft, resulting in a fatal accident.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK)

☐ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030 SIGNATURE Robert M Breland

III G-40

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 325442

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE) DATE 08/07/79 (MO/DA/YR) TIME 0600 (24 HR CLOCK)

SERVED TO Bob Resiegh, Project Manage OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract MINE I.D. 05-03149-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a VIOLATION OF SECTION _____ OF THE ACT OR

PART AND SECTION 57.0019-00120 OF TITLE 30 CODE OF FEDERAL REGULATIONS.

TYPE OF INSPECTION 030 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE Entries in the hoistman's log book indicater that control problems existed on the Gosselay hoist, with no reported correction since afternoon shift 7/31/79. The company continued to use the hoist until the destruction of the hoist ropes and a fatal accident occurred on 8/6/79.

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. _____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/22/79 (MO/DA/YR) TIME 1200 (24 HR CLOCK) SIGNATURE Ronald J Knowles 0656 (AR)

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME _____ (24 HR CLOCK) SIGNATURE ▶ ____ (AR) ☐ SEE SUBSEQUENT ACTION SHEET

III 6-41

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 325441

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE)

DATE 08/08/79 (MO/DA/YR) TIME 1330 (24 HR CLOCK)

SERVED TO Robert Lesiegh, Project Manager

OPERATOR Gilbert Corp of Delaware

MINE C B Tract

MINE I.D. 05-03144-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-A-_,____-_-_

VIOLATION OF SECTION ___-_-_ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0011-00012

TYPE OF INSPECTION 030

☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE Both decks on the galloway stage were not provided with hand railing around the perimeter of the galloway. This galloway was located in the service shaft.

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. _____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/19/79 (MO/DA/YR) TIME 0900 (24 HR CLOCK) SIGNATURE Rosendo Trujillo 0310 AR

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME ____ (24 HR CLOCK) SIGNATURE ____ AR ☐ SEE SUBSEQUENT ACTION SHEET

III 6-42

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325437-1 DATED 08/02/79 (MO/DA/YR)

[X] SUBSEQUENT ACTION [ ] CONTINUATION [X] CITATION [ ] ORDER DATE 08/08/79 (MO/DA/YR) TIME 1130 (24 HR CLOCK)

SERVED TO A. N. Schnapp, Shaft Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW The 4160 volt fuse Switch for the Alcan Hoist located in the Falconbridge Hoist house was properly labled to show what it controlled.

[ ] EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK) [ ] VACATED DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK)

[X] TERMINATED [ ] MODIFIED [ ] SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 001

SIGNATURE Ronald J Renowden 656 (AR)

III G-43

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 327244

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE) DATE 08/08/79 (MO/DA/YR) TIME 1600 (24 HR CLOCK)

SERVED TO Robert Keough, Project Manager OPERATOR Gilbert Corp. of Delaware

MINE CB Tract MINE I.D. 05-03149-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a VIOLATION OF SECTION ____-__-__ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.19-120

TYPE OF INSPECTION 030 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE A systematic procedure for testing and maintenance of hoisting equipment had not been established. A hoistman and an electrician on 8-6-79 swing shift were trouble shooting the speed controls for the Gosbay hoist at the service shaft with men on the skip station which resulted in a rope failure and a fatality.

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. _____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/09/79 (MO/DA/YR) TIME 1200 (24 HR CLOCK) SIGNATURE Robert McClelland 516 AR

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME _____ (24 HR CLOCK) SIGNATURE ____ AR ☐ SEE SUBSEQUENT ACTION SHEET

III G-44

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 336103

☐ CITATION (SEE REVERSE) ☒ ORDER OF WITHDRAWAL (SEE REVERSE) DATE 08/09/79 (MO/DA/YR) TIME 1200 (24 HR CLOCK)

SERVED TO Robert Rozeigh, manager OPERATOR Gilbert Corp of Delaware

MINE C B 7 Mat MINE I.D. 05-03149-___ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 107-a-, 104-a- VIOLATION OF SECTION ___-___-___ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.19-120

TYPE OF INSPECTION 030 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE All locknuts on both upper and lower toe rods were loose on the right hand brake. The estimated clearance between the crosshead at the overtravel limit position and crosshead beam is 10-feet (Mr. Rozeigh). With present settings of the safety devices the calculated emergency stopping distance required is in the order of 20-feet. Rope has failed. Fatal resulted.

AREA OR EQUIPMENT Service Hoist Production Shaft.

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. ___ DATED ___/___/___ (MO/DA/YR)

TERMINATION DUE DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK) SIGNATURE [signature] 348 AR

ACTION TO TERMINATE

DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK) SIGNATURE ___ AR ☐ SEE SUBSEQUENT ACTION SHEET

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 336104

☐ CITATION (SEE REVERSE) ☒ ORDER OF WITHDRAWAL (SEE REVERSE)

DATE 08/09/79 (MO/DA/YR) TIME 1200 (24 HR CLOCK)

SERVED TO Robert Keziah, manager

OPERATOR Gilbert Corp. of Delaware,

MINE C B Tract

MINE I.D. 05-03149-___ (CONTRACTOR)

TYPE OF ACTION 107-a-104-a- (SEE REVERSE)

VIOLATION OF SECTION ___-___-___ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.19-120

TYPE OF INSPECTION 030

☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE There was insufficient further energy of travel of the left hand brake engine, which is the "fall on" position. The overlap stroke was 11-inches. In addition a piece of timber was lodged beneath the brake weight. The lower attachment pin for the upper reach rod had worked out 1 3/4+ inches, at the weight arm. The bottom lock nut was loose on the straddle rod.

AREA OR EQUIPMENT Service Hoist Production Shaft

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. _____ DATED ___/___/___ (MO/DA/YR)

TERMINATION DUE DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK) SIGNATURE ► R Whitesell 30 (AR)

ACTION TO TERMINATE

DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK) SIGNATURE ► ___ (AR)

☒ SEE SUBSEQUENT ACTION SHEET

III 6-46

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0336104-1 DATED 08/09/79 (MO/DA/YR)

☐ SUBSEQUENT ACTION ☒ CONTINUATION ☐ CITATION ☒ ORDER DATE 08/09/79 (MO/DA/YR) TIME 1200 (24 HR CLOCK)

SERVED TO Robert Kezeigh OPERATOR Gilbert Corp of Delaware

MINE C B Tract MINE I.D. 05-02149-____ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW

The regulating valve alternating slide attachment Jockmat was loose with present settings of the safety devices. The calculated emergency stopping distance required is in the order of 52-feet and headroom clearance was reported only 10-feet (Mr Kezeigh)

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☐ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030 SIGNATURE [signature] 0345 (AR)

III G-47

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325445-1 DATED 08/08/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☒ CONTINUATION ☒ CITATION ☐ ORDER DATE 08/09/79 (MO/DA/YR) TIME 1540 (24 HR CLOCK)

SERVED TO Bob Resnick, Project Manager OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract MINE I.D. 05-03149-____ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW The upper deceleration cam on the Kelly controller on the T. & E hoist was properly adjusted with the alarm contact gap of 1/32" (approx.) o

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☒ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030

SIGNATURE Ronald J. Knowden e656 (AR)

III 6-48

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 325449

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE)

DATE 08/09/79 (MO/DA/YR) TIME 1000 (24 HR CLOCK)

SERVED TO Bob Kenech, Project Manager OPERATOR Gilbert Corporation of Delaware

MINE C-b Todd MINE I.D. 05-03149-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104a

VIOLATION OF SECTION ____-____-____ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0012-00018

TYPE OF INSPECTION 030 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE Principal power switches were not labeled to show what units they control located at the high voltage sub-station next to the service hoist house. This was high voltage switchgear.

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. ____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/15/79 (MO/DA/YR) TIME 1200 (24 HR CLOCK) SIGNATURE Ronald J Kenowden 056 AR

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME ____ (24 HR CLOCK) SIGNATURE ____ AR ☐ SEE SUBSEQUENT ACTION SHEET

III G - 49

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325444-1 DATED 08/07/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☒ CONTINUATION ☒ CITATION ☐ ORDER DATE 08/09/79 (MO/DA/YR) TIME 1125 (24 HR CLOCK)

SERVED TO Bob Keough, Project Manager OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW The two 4"x4" junction boxes, located between the Lilly controllers on the Gosebay hoist were provided with covers.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☒ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030

SIGNATURE Ronald J. Kenowden 0656 (AR)

III G-50

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325448-1 DATED 08/08/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☒ CONTINUATION ☒ CITATION ☐ ORDER DATE 08/09/79 (MO/DA/YR) TIME 1530 (24 HR CLOCK)

SERVED TO Bob Keough, Project Manager OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW The backout operation was corrected on the V.E hoist. It was found that the hoistman was confused with the labeling on the backout switches for "left" and right" side backout operation. Labels for the switches will be properly labeled.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☒ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030

SIGNATURE Donald J. Kenworden 0656 (AR)

III G-51

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325450-3 DATED 08/10/79 (MO/DA/YR)

[X] SUBSEQUENT ACTION [X] CONTINUATION [X] CITATION [ ] ORDER DATE 08/10/79 (MO/DA/YR) TIME 1635 (24 HR CLOCK)

SERVED TO Ray Kenda, Shift Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-B Tract MINE I.D. 05-03149-____ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW These conditions shall be corrected before equipment or wiring is energized.

[ ] EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK) [ ] VACATED DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK)

[ ] TERMINATED [ ] MODIFIED [ ] SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030 SIGNATURE Ronald J Renowden 0656 (AR)

III G-52

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325450-1 DATED 08/10/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☒ CONTINUATION ☒ CITATION ☐ ORDER DATE 08/10/79 (MO/DA/YR) TIME 1635 (24 HR CLOCK)

SERVED TO Ray Klenda, Shift Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-6 Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW 2. The strain relief cable connector was not supporting the cable leaving the #58 flygt pump terminal box. This was a 8/4 submersible cable 480 v.
3. It is suspected that the 58 flygt pump motor circuit is not properly protected and the flygt pump motor is not protected for overload.
4. A #8/4 submersible cable is spliced to a 4/4 submersible cable and the splices are improper, especially one with friction tape used on the last layer. The terminal lugs were fastened

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☐ TERMINATED ☐ MODIFIED ☒ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030 SIGNATURE Ronald J Renowden 0656 AR

III G-53

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 325450

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE)

DATE 08/10/79 (MO/DA/YR) TIME 1635 (24 HR CLOCK)

SERVED TO Kay Klenda, Shift Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract MINE I.D. 05-03149-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a VIOLATION OF SECTION _____ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0012-00030

TYPE OF INSPECTION 030 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE Potentially dangerous conditions were found on the Galloway at the service shaft since it has been moved to the bottom of the shaft and are as follows:
1. A three phase 480 volt terminal box with 3, 480 v. standoffs did not have the door secured to prevent water from entering or prevent persons from contacting ~~AREA OR EQUIPMENT~~ energized terminals. The circuit served the #58 flygt pump.

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. _____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/13/79 (MO/DA/YR) TIME 1000 (24 HR CLOCK) SIGNATURE Ronald J. Renourden 0656 AM

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME _____ (24 HR CLOCK) SIGNATURE _____ AR ☒ SEE SUBSEQUENT ACTION SHEET

III G-54

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325450-2 DATED 08/10/79 (MO/DA/YR)

[X] SUBSEQUENT ACTION [X] CONTINUATION [X] CITATION [ ] ORDER DATE 08/10/79 (MO/DA/YR) TIME 1635 (24 HR CLOCK)

SERVED TO Ray Klenda, Shift Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-6 Tract MINE I.D. 05-03149-____ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW to the wire with a hammer. #5 Electrical cables are lying on the Galloway floor, subject to damage. #6 Electrical cables are not hung correctly or supported where they hang. #8. Quartz portable lamps have the lens missing. #8 Some of the electrical equipment and hardware are not watertight. #9 Some of the electrical enclosures are loosely hung. #10 A #2/3 cable has been smashed. #11 It was reported that miners were doing electrical work. #12 The ground circuit shall be checked throughout the Galloway.

[ ] EXTENDED TO: DATE ____/____/____ (MO/DA/YR) TIME ____ (24 HR CLOCK) [ ] VACATED DATE ____/____/____ (MO/DA/YR) TIME ____ (24 HR CLOCK)

[ ] TERMINATED [ ] MODIFIED [X] SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030

SIGNATURE ▶ Ronald J Renowden 0656 (AR)

III G-55

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-79)

No 0325446-1 DATED 08/08/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☒ CONTINUATION ☒ CITATION ☐ ORDER DATE 08/10/79 (MO/DA/YR) TIME 1355 (24 HR CLOCK)

SERVED TO Bob Keough, Project Manager OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW Drive motor torque assurance was properly interlocked with the braking system on the T. & E. hoist when in an overtravel condition. Wires were found crossed in the back out circuit as reported by an electrician.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK)

☒ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030 SIGNATURE Ronald J. Renowden 0656 (AR)

III G-56

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325442-2 DATED 08/07/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☒ CONTINUATION ☒ CITATION ☐ ORDER DATE 08/15/79 (MO/DA/YR) TIME 1900 (24 HR CLOCK)

SERVED TO Ray Klenda, Shift Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-6 Tract MINE I.D. 05-03149-____ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW Testing and maintenance of hoisting equipment had not been followed, therefore, this constitutes an imminent danger.

☐ EXTENDED .O: DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK)
☐ TERMINATED ☒ MODIFIED

TYPE OF INSPECTION 030

☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK)
☐ SEE SUBSEQUENT ACTION SHEET

SIGNATURE Ronald J. Renowden 0656

III G-57

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325442-1 DATED 08/07/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☒ CONTINUATION ☒ CITATION ☐ ORDER DATE 08/15/79 (MO/DA/YR) TIME 1900 (24 HR CLOCK)

SERVED TO Ray Klenda, Shift Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW This is to modify the "type of action" on citation number 325442 from a 104(a) citation to a 104(d)(1) order and no longer requires a termination due date. The condition must be corrected before the equipment can be returned to service.

Supervision was aware of the speed control and braking system problems and had failed to shutdown the Goosebay hoist until the malfunctions were corrected. The malfunctions had been documented in the hoistmans logbook. This substantially verifies that a concrete, systematic procedure of inspection, (continued)

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☐ TERMINATED ☒ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030 SIGNATURE Ronald J. Renowden 0651 (AR)

III G-58

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 325451

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE) DATE 08/15/79 (MO/DA/YR) TIME 1800 (24 HR CLOCK)

SERVED TO Ray Kbenda, Shift Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-D Tract MINE I.D. 05-03149-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a-_____ VIOLATION OF SECTION _____ OF THE ACT OR

PART AND SECTION 57.0019-0076 OF TITLE 30 CODE OF FEDERAL REGULATIONS.

TYPE OF INSPECTION 030 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE On man trip mode, buckets used to hoist men had an overspeed trip of 600 f.p.m. Speeds within 100 feet of intended station exceeded 325 f.p.m. for overspeed trip. This condition exists on the Clark hoist.

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. _____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/16/79 (MO/DA/YR) TIME 1200 (24 HR CLOCK) SIGNATURE Ronald J Renowden 655 (AR)

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME _____ (24 HR CLOCK) SIGNATURE _____ (AR) ☐ SEE SUBSEQUENT ACTION SHEET

III G-59

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325452-1 DATED 08/15/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☒ CONTINUATION ☐ CITATION ☒ ORDER DATE 08/15/79 (MO/DA/YR) TIME 1030 (24 HR CLOCK)

SERVED TO Bob Keseigh, Project Manager OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW And master switch linkage. (2) Left brake line adjustment for alignment was loose (3) Left brake yoke for brake counterweight yoke to linkage bolt had worked out ½ inch. (4) A joining bolt (1½") on the brake ring, left side was missing. (5) ½" bolts and nuts that add strength to the brake pads were loose, on both sides. (6) Bolts holding brake shoes were loose, on both sides. (7) Right and left clutch interlock linkage adjustment locknuts were loose. (8) Expansion ring adjustment bolts were missing lock nuts on both sides. These conditions be unwarrantable.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☐ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030

SIGNATURE Ronald J Kerowden 0656 (AR)

III G-60

Clark hoist

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78) No 325452

☐ CITATION (SEE REVERSE) ☒ ORDER OF WITHDRAWAL (SEE REVERSE) DATE 08/15/79 (MO/DA/YR) TIME 1030 (24 HR CLOCK)

SERVED TO Bob Reseigh, Project Manage OPERATOR Gilbert Corporation of Delaware

MINE C & D Tract MINE I.D. 05-03149-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-d-1 VIOLATION OF SECTION ____-____-__ OF THE ACT OR

PART AND SECTION 57.0019-00120 OF TITLE 30 CODE OF FEDERAL REGULATIONS.

TYPE OF INSPECTION 030 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE A concrete systematic procedure of inspection testing and maintenance of hoisting equipment had not been followed on the Clark Hoist, where poor mechanical maintenance has been found. Numerous cotter keys were found not spread, broken had missing or left and right clutch and brake linkages, silly controllers, brake engine linkages (cont.)

~~AREA~~ OR EQUIPMENT Clark hoist

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. ____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE __/__/__ (MO/DA/YR) TIME ____ (24 HR CLOCK) SIGNATURE Ronald J Renowden 0656 (AR)

ACTION TO TERMINATE All conditions listed have been corrected by Companys mechanics.

DATE 08/15/79 (MO/DA/YR) TIME 1700 (24 HR CLOCK) SIGNATURE Ronald J Renowden 0656 (AR) ☒ SEE SUBSEQUENT ACTION SHEET

III G-9 61

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 325453

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE) DATE 08/15/79 (MO/DA/YR) TIME 1000 (24 HR CLOCK)

SERVED TO Carl Keough, Project Manage OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract MINE I.D. 05-03149-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a-____-____-____-____ VIOLATION OF SECTION ____-____-____ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0012-00028

TYPE OF INSPECTION 030 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE ~~Co~~ Measured resistance and continuity tests had not been done on the Clark hoist and service shaft after repairs to electrical power systems.

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. ____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/17/79 (MO/DA/YR) TIME 1000 (24 HR CLOCK) SIGNATURE ▶ Ronald J. Renowden #656 (AR)

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME ____ (24 HR CLOCK) SIGNATURE ▶ ____ (AR) ☐ SEE SUBSEQUENT ACTION SHEET

III G-62

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 325454

[X] CITATION (SEE REVERSE) [ ] ORDER OF WITHDRAWAL (SEE REVERSE). DATE 08/15/79 (MO/DA/YR) TIME 1000 (24 HR CLOCK)

SERVED TO Bob Keough, Project Manager OPERATOR Gilbert Corporation of Delaware

MINE C-b Mart MINE I.D. 05-03147-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a VIOLATION OF SECTION ____-____-____ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0012-00028

TYPE OF INSPECTION 030 [X] SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE A record of resistance measured and continuity tests were not made available on request of a duly authorized representative.

AREA OR EQUIPMENT

INITIAL ACTION [ ] NOTICE [ ] CITATION [ ] ORDER NO. ____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/29/79 (MO/DA/YR) TIME 1200 (24 HR CLOCK) SIGNATURE Ronald J. Renowden 0656 (AR)

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME ____ (24 HR CLOCK) SIGNATURE ____ (AR) [ ] SEE SUBSEQUENT ACTION SHEET

III G-63

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325443-1 DATED 08/07/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☒ CONTINUATION ☒ CITATION ☐ ORDER DATE 08/15/79 (MO/DA/YR) TIME 1900 (24 HR CLOCK)

SERVED TO Ray Klenda, Shift Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-6 Tract MINE I.D. 05-03149-____ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW This is to modify the "type of action" on citation number 325443 from a 104(a) citation to a 104(d)(1) order and no longer requires a termination date. The condition must be corrected before the equipment can be returned to service. It is clearly evident, as documented in the Grosebay hoist log books, that the "Lilly" controller and brake system settings and adjustments are not logged. Persons interviewed do not know who last adjusted those systems. Poor maintenance is evident

(continued)

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☐ TERMINATED ☒ MODIFIED

TYPE OF INSPECTION 030

☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☐ SEE SUBSEQUENT ACTION SHEET

SIGNATURE Ronald J Renowden 0650 (AR)

III G-64

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325443-2 DATED 08/07/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☒ CONTINUATION ☒ CITATION ☐ ORDER DATE 08/15/79 (MO/DA/YR) TIME 1900 (24 HR CLOCK)

SERVED TO Ray Klenda, Shift Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-6 Tract MINE I.D. 05-03149-___ (CONTRACTOR

JUSTIFICATION FOR ACTION CHECKED BELOW around the hoisting equipment and this substantially verifies that a concrete, systematic procedure of inspection, testing and maintenance of hoisting equipment had not been followed and constitutes unwarrantable failure.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK)

☐ TERMINATED ☒ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030

SIGNATURE Ronald J. Knowden 0656 (AR)

III 6-65

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0327243-2 DATED 08/07/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☒ CONTINUATION ☒ CITATION ☐ ORDER DATE 08/15/79 (MO/DA/YR) TIME 1900 (24 HR CLOCK)

SERVED TO Ray Kinda, Shift Supervisor OPERATOR Gilbert Corp. of Delaware

MINE CB Tract MINE I.D. 05-03142-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW This citation is being modified to a 104(d)(1) citation because the operator had been previously cited for the failure to make required checks on belts on 3-20-79 and on 8-1-79. Additionally they were cited on 3-20-79 for failure to keep complete records relating to hoists so that an accurate determination could be made of the hoist conditions. The last check by the crossboss indicated problems existed severe enough to be accident but not of a character that corrective actions, if any were taken to secure the hoist. (Continued)

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK)

☐ TERMINATED ☒ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION E30

SIGNATURE Patric M. Brickert 516 (AR)

III 6-9 66

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0327243-3 DATED 08/07/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☒ CONTINUATION ☒ CITATION ☐ ORDER DATE 08/15/79 (MO/DA/YR) TIME 1900 (24 HR CLOCK)

SERVED TO Ray Klinda, Shift Superintendent OPERATOR Gilbert Corp. of Delaware

MINE CP Tract MINE I.D 05-03149-____ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW It was reported that maintenance was performed on day shift as well as swing shift on 8-6-79, without the required checks being made or documented. Required checks by the boatmen to examine their boat test for cracks, oil drain controls, position indicators and breaking mechanisms at the beginning of each shift. Additionally one other boat was issued on the VEC boat on 3-20-79 because a boatman had failed to make an overtaxed check and was unable to boat the boat out of the outboard position when requested. (Continued)

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☐ TERMINATED ☒ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030

SIGNATURE Robert M. Ballard 516 (AR)

III G-67

89-9 III 6-68

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0327243-4 DATED 08/07/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☒ CONTINUATION ☒ CITATION ☐ ORDER DATE 08/15/79 (MO/DA/YR) TIME 1900 (24 HR CLOCK)

SERVED TO Ray Kilanda, Shift Supervisor OPERATOR Gilbert Corp of Delaware

MINE CB T-sect MINE I.D. 05-03149-____ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW To make the check by an authorized representative. The previous citations and orders issued this operator concerning hoisting equipment and entries to be made in the log books substantiate and unwarranted failure of the operator to follow up on establishing a systematic procedure for proper inspection, testing and maintenance of hoist equipment.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☐ TERMINATED ☒ MODIFIED

☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030

SIGNATURE Cedric M Breland 516

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 327242

☐ CITATION (SEE REVERSE) ☒ ORDER OF WITHDRAWAL (SEE REVERSE) DATE 08 / 07 / 79 TIME 0420
MO DA YR (24 HR CLOCK)

SERVED TO Robert Cipich, Project Manager OPERATOR Gilbert Corp. of Delaware

MINE CB Tract MINE I.D. 05-03109-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 103-K-_____ VIOLATION OF SECTION 103-K- OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION _____

TYPE OF INSPECTION C30 ☐ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE A hoisting accident occurred with the Grassley Tract at the service shaft resulting in a fatal accident. This order is issued to assure the safety of any person at the mine until an investigation is made to determine that the service shaft and hoisting equipment is safe. The following persons are permitted to remain in or enter the mine: (See continuation)

AREA OR EQUIPMENT Service shaft and hoisting equipment

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. _____ DATED ___ / ___ / ___
MO DA YR

TERMINATION DUE DATE ___ / ___ / ___ TIME _____ SIGNATURE Rodric M Orland 5 16
MO DA YR (24 HR CLOCK) AR

ACTION TO TERMINATE

DATE ___ / ___ / ___ TIME _____ SIGNATURE ▶ ___ AR ☐ SEE SUBSEQUENT ACTION SHEET
MO DA YR (24 HR CLOCK)

69 -9 III

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No. 327242-2 DATED 08/07/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☐ CONTINUATION ☐ CITATION ☒ ORDER DATE 08/15/79 (MO/DA/YR) TIME 1900 (24 HR CLOCK)

SERVED TO Ray Rhoads, Shift Supervisor OPERATOR Gilbert Corp of Delaware

MINE CB tract MINE I.D. 05-03142-____ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW The 103K Order No 327242 is modified as follows: The Clark hoist shall be used only for necessary shaft maintenance and shall be used for man mode only, not to exceed 300 feet per minute. A number of mechanical problems have been found on the Clark hoist which may require technical assistance expects to be called in for a complete inspection and correction of hoist equipment deficiencies.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☐ TERMINATED ☒ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030

SIGNATURE Robie M Breland 516 (AR)

III 6-70

225-441-325,460

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 325455

[X] CITATION (SEE REVERSE) [ ] ORDER OF WITHDRAWAL (SEE REVERSE)

DATE 08/22/79 (MO/DA/YR) TIME 0910 (24 HR CLOCK)

SERVED TO Bob Reseigh, Project Manager

OPERATOR Gilbert Corporation of Delaware

MINE C-6 Inlet

MINE I.D. 05-03149-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a

VIOLATION OF SECTION ____-__-__ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0019-00083

TYPE OF INSPECTION 030

[X] SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE The Goseboy hoist was in a overtravel condition. Drive motor torque assurance was not interlocked with the braking system on the hoist while in an overtravel condition.

AREA OR EQUIPMENT

INITIAL ACTION [ ] NOTICE [ ] CITATION [ ] ORDER NO. ____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 08/23/79 (MO/DA/YR) TIME 0800 (24 HR CLOCK) SIGNATURE Ronald J Renowden 0656 AR

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME ____ (24 HR CLOCK) SIGNATURE ____ AR [ ] SEE SUBSEQUENT ACTION SHEET

III 6-79

III 6-72

335 2141-325,460

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 325456

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE) DATE 08/22/79 TIME 0855
MO DA YR (24 HR CLOCK)

SERVED TO Bob Keseigh, Project Manager OPERATOR Gilbert Corporation of Delaware

MINE C-B Tract MINE I.D. 05-03149-___ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a VIOLATION OF SECTION ___-___-___ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0012-00001

TYPE OF INSPECTION 030 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE The Goosebay hoist 4160 volt power circuit contactor located at the service hoist substation was provided with a tag stating that a control problem in the contactor controls required that the 4160 volt contactor be "LOCKED" in the closed position. This provided no circuit protection at that point.

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. ___ DATED ___/___/___
MO DA YR

TERMINATION DUE DATE 08/23/79 TIME 1000 SIGNATURE Ronald J. Renowden 0655 AR
MO DA YR (24 HR CLOCK)

ACTION TO TERMINATE

DATE ___/___/___ TIME _____ SIGNATURE ___ AR ☐ SEE SUBSEQUENT ACTION SHEET
MO DA YR (24 HR CLOCK)

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No. 0325456-1 DATED 08/22/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☒ CONTINUATION ☒ CITATION ☐ ORDER DATE 08/23/79 (MO/DA/YR) TIME 1545 (24 HR CLOCK)

SERVED TO Bob Rosiek, Project Manager OPERATOR Gilbert Corporation of Delaware

MINE C-6 Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW The 4160 volt contactor control circuit problem was corrected so that the contactor was unrecked in the closed position and the red tag was removed from the "trip" handle. This was located at the Service Host substation.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☒ TERMINATED ☐ MODIFIED

TYPE OF INSPECTION 030

☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☐ SEE SUBSEQUENT ACTION SHEET

SIGNATURE ▶ Ronald J. Knowden 0656 (AR)

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325455-1 DATED 08/22/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☒ CONTINUATION ☒ CITATION ☐ ORDER DATE 08/23/79 (MO/DA/YR) TIME 1415 (24 HR CLOCK)

SERVED TO Bob Keough, Project Manager OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW Drive motor torque assurance was properly interlocked with the braking system on the portable hoist when in an overtravel condition. "PA" contacts in the brake control circuit were not functioning as reported by the Electrical Engineer. The problem has rectified.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☒ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030

SIGNATURE Ronald J. Renowden 0656 (AR)

III G-74

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0336104-2 DATED 08/09/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☒ CONTINUATION ☐ CITATION ☒ ORDER DATE 08/23/79 (MO/DA/YR) TIME 1615 (24 HR CLOCK)

SERVED TO Ray Klenda, Shift Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-B Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW There was suffecent travel of the left hand brake engine when in the full on position. The piece of timber lodged beneath the brake weight was removed. The loose attachment pin for the upper reach rod at the deadweight arm was corrected. The bottom lock nut on the stabilizer rod was tightened. The regulating valve actuating slide attachment lock nut was tightened. The present setting of the safety devices provides an emergency stopping distance of 6½ feet with the estimated clearance between the headhead and the top overtravel limit and crash beam is 11 feet.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☒ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030 SIGNATURE Ronald J Kenowden 0656 (AR)

III 6-75

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0336103-1 DATED 08/09/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☒ CONTINUATION ☐ CITATION ☒ ORDER DATE 08/23/79 (MO/DA/YR) TIME 1615 (24 HR CLOCK)

SERVED TO ~~Ray Kenda, Safety Engineer~~ Ray Kenda Shift Supt. OR OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW All lock-nuts on both upper and lower tie rods were tightened on the right hand brake. The present setting of the safety devices provides an emergency stopping distance of 6½ feet, while the estimated clearance between the crosshead and the top overtravel limit and crash beam is 11 feet.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☒ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030 SIGNATURE Ronald J. Renowden 0656 (AR)

III 6-76

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

NO. 0327242-3 DATED 08/07/79 (MO/DA/YR)

[X] SUBSEQUENT ACTION [ ] CONTINUATION [ ] CITATION [X] ORDER DATE 08/23/79 (MO/DA/YR) TIME 1500 (24 HR CLOCK)

SERVED TO Ray Klunda, Shift Superintendent OPERATOR Gilbert Corp of Delaware

MINE CB tract MINE I.D. 05-03142-____ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW The 103K order No. 327242 is modified to allow the Gooseberry hoist to be used in man mode, only for the purpose of necessary shaft maintenance. The deenergization cycle is to be delayed prior to releasing the hoist for normal operation.

[ ] EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK) [ ] VACATED DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK)

[ ] TERMINATED [X] MODIFIED [ ] SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030

SIGNATURE Fedric M. Breland 516 (AR)

III G-77

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0327241-1 DATED 08/07/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☐ CONTINUATION ☐ CITATION ☒ ORDER DATE 08/23/79 (MO/DA/YR) TIME 1500 (24 HR CLOCK)

SERVED TO Ray & Linda, Shift Supervisor OPERATOR Gilbert Corp. of Delaware

MINE CB tract MINE I.D 05-03142-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW The 103 J order no 327241 is being terminated because all physical conditions pertinent to the accident have been observed and documented.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK)

☒ TERMINATED ☐ MODIFIED

☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK)

☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030

SIGNATURE Eddie M Boland 516 (AR)

III 6-78

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325443-3 DATED 08/07/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☒ CONTINUATION ☒ CITATION ☒ ORDER DATE 08/23/79 (MO/DA/YR) TIME 1630 (24 HR CLOCK)

SERVED TO Ray Klenda, Shift Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-6 Tract MINE I.D. 05-03147-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW The decelerating cams along with the brake regulating features on the Gooseberry hoist have been adjusted etc provided the required safety features with the hoisting operation. A procedure of inspection, testing and maintenance has been updated to an acceptable level. — Retardation has been limited to 200 f.p.m. and the brake regulating feature was at 95% of profile at final hoisting limit.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK)

☒ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 030 SIGNATURE Ronald J. Knowden 0651 (AR)

III G-79

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325442-3 DATED 08/07/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☐ CONTINUATION ☒ CITATION ☒ ORDER DATE 08/30/79 (MO/DA/YR) TIME 1800 (24 HR CLOCK)

SERVED TO Bob Keesigh, Project Manager OPERATOR Gilbert Corporation of Delaware

MINE C-6 Tract MINE I.D. 05-03149-____ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED ~~below~~ Citation No. 325942 has been terminated. A procedure of inspection, Testing and maintenance has been updated to an acceptable level so that the Shoreham hoist can be returned to a double drum hoisting procedure. It is released with the condition that company proposed hoist record keeping procedures, which initiates maintenance needed & certifies maintenance accomplishments, appear to be adequate but will be re-evaluated after a trial period.

08-9 III 6-80

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325450-4 DATED 08/10/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☐ CONTINUATION ☒ CITATION ☐ ORDER DATE 09/18/79 (MO/DA/YR) TIME 1430 (24 HR CLOCK)

SERVED TO Erwin Lass, Gen. Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-6 Tract. MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW This is to extend citation No. 325450 because the equipment that has been ordered, by the operator to repair the electrical conditions has not arrived. All of the conditions listed cannot be abated. The operator is having to order special equipment to fit their needs. Motors circuits must be re-designed so that oberload protection can be provided.

☒ EXTENDED TO: DATE 10/18/79 (MO/DA/YR) TIME 1400 (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☐ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 001 SIGNATURE Donald J. Renowden – 656 (AR)

III G - 81

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0327244-1 DATED 08/08/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☐ CONTINUATION ☒ CITATION ☐ ORDER DATE 09/18/79 (MO/DA/YR) TIME 1553 (24 HR CLOCK)

SERVED TO Erwin Sass, Project Superintendent OPERATOR Gilbert Corp of Delaware

MINE CB tract MINE I.D 05-03149-____ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW Robert Keough, project manager issued a memorandum in addition to verbal instructions that men are not to be in the shaft during testing and maintenance of hoisting equipment.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☒ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 001

SIGNATURE Fredric M Butland 516 (AR)

III 6-82

UNITED STATES DEPARTMENT OF LABOR – MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3 (3-78)

No 327245

[X] CITATION (SEE REVERSE) [ ] ORDER OF WITHDRAWAL (SEE REVERSE) DATE 09/18/79 (MO/DA/YR) TIME 1354 (24 HR CLOCK)

SERVED TO Erwin Sass, Project Superintendent OPERATOR Gilbert Corp. of Delaware

MINE CB Tract MINE I.D. 05-03149-[ ] (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-a VIOLATION OF SECTION ____ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.11-1

TYPE OF INSPECTION 001 [X] SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE A safe means of access from the #2 bucket, of the Gooseberry hoist, to the pump station was not provided in the service shaft. An approximate 3' gap had to be crossed from the bucket to the platform without hand-rails and it was approximately 300' to the shaft bottom. Erwin Sass, Project Superintendent stated that he would not

AREA OR EQUIPMENT (cont.)

INITIAL ACTION [ ] NOTICE [ ] CITATION [ ] ORDER NO. ____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 09/21/79 (MO/DA/YR) TIME 1200 (24 HR CLOCK) SIGNATURE Eldric M Breland AR 516

ACTION TO TERMINATE

DATE __/__/__ (MO/DA/YR) TIME _____ (24 HR CLOCK) SIGNATURE ____ AR ____ [X] SEE SUBSEQUENT ACTION SHEET

III G - 83

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325429-1 DATED 08/01/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☐ CONTINUATION ☒ CITATION ☐ ORDER DATE 09/18/79 (MO/DA/YR) TIME 1230 (24 HR CLOCK)

SERVED TO Erwin Sass, Gen. Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-6 Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW The permanent splice in a 1/4 50 Cable located at the switchboard near the V & C Shaft Collar was properly repaired.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK)

☒ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 001

SIGNATURE Ronald J. Renourden -656 (AR)

III 6-84

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325454-1 DATED 08/15/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☐ CONTINUATION ☒ CITATION ☐ ORDER DATE 09/18/79 (MO/DA/YR) TIME 1440 (24 HR CLOCK)

SERVED TO Emrin Saas, Gen. Supt. OPERATOR Gilbert Corporation of Delaware.

MINE C-b Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW Records of resistance measured and continuity tests were available upon request of an authorized representative.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☒ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 001

SIGNATURE Ronald J. Renourde - 656 (AR)

58-9 III 6-85

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325453-1 DATED 08/15/79 (MO/DA/YR)

[X] SUBSEQUENT ACTION [ ] CONTINUATION [X] CITATION [ ] ORDER DATE 09/18/79 (MO/DA/YR) TIME 1440 (24 HR CLOCK)

SERVED TO Erwin Sass, Gen. Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW Measured resistance and continuity check test records were made available on the Clark hoist and service shaft after repairs had been made.

[ ] EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) [ ] VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

[X] TERMINATED [ ] MODIFIED [ ] SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 001

SIGNATURE Ronald J Renowden -656 (AR)

98 -9 III 86

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 03254341 DATED 08/01/79 (MO/DA/YR)

[X] SUBSEQUENT ACTION [ ] CONTINUATION [X] CITATION [ ] ORDER DATE 09/18/79 (MO/DA/YR) TIME 1505 (24 HR CLOCK)

SERVED TO Erwin Sass, Gen. Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW Insulating mats were provided at the power control switches in the Alcan hoist house.

[ ] EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) [ ] VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

[X] TERMINATED [ ] MODIFIED [ ] SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 001

SIGNATURE Ronald J. Renowden - 656 (AR)

III 6-87

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325438-1 DATED 08/02/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☐ CONTINUATION ☒ CITATION ☐ ORDER DATE 09/18/79 (MO/DA/YR) TIME 1500 (24 HR CLOCK)

SERVED TO Erwin Sass, Gen. Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-6 Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW Insulating mats were provided at the power control switches in the Falconbridge hoist house.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☒ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 001

SIGNATURE Ronald J. Renowden - 656 (AR)

III G-88

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325435-1 DATED 08/01/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☐ CONTINUATION ☒ CITATION ☐ ORDER DATE 09/18/79 (MO/DA/YR) TIME 1425 (24 HR CLOCK)

SERVED TO Erwin Sass, Gen. Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW The fence surrounding the service hoist transformers was repaired to provide the required 3 feet clearance from the transformer casings.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☒ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 001

SIGNATURE Ronald J Renowden - 656 (AR)

68 -9 III

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325439-1 DATED 08/02/79 (MO/DA/YR)

[X] SUBSEQUENT ACTION [ ] CONTINUATION [X] CITATION [ ] ORDER DATE 08/08/79 (MO/DA/YR) TIME 1015 (24 HR CLOCK)

SERVED TO A.N. Schnopp, Shaft Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-6 Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW The #2/4 SO cable that was contained in victaulic piping and which was pulled out of the ground by a bobcat, between the air intake and service shaft has been properly buried. A new cable was installed.

[ ] EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) [ ] VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

[X] TERMINATED [ ] MODIFIED [ ] SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 001

SIGNATURE Ronald J. Renowden -656 (AR)

III 6-90

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325433-1 DATED 08/01/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☐ CONTINUATION ☒ CITATION ☐ ORDER DATE 09/18/79 (MO/DA/YR) TIME 1415 (24 HR CLOCK)

SERVED TO Erwin Sass, Ser Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW Principal power switches, located at the Production Headframe, switchboard were properly labeled to show what they control.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☒ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 001

SIGNATURE ▶ Ronald J Renowden – 656 (AR)

III 6-91

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325431-1 DATED 08/01/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☐ CONTINUATION ☒ CITATION ☐ ORDER DATE 09/18/79 (MO/DA/YR) TIME 1250 (24 HR CLOCK)

SERVED TO Erwin Sass, Gen. Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW The fence surrounding the transformers at the Generating Station was repaired to provide the required 3 feet clearance from transformer casings.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☒ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 001 SIGNATURE Ronald J. Renowden - 656 (AR)

26-9 III

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325441-1 DATED 09/08/79 (MO/DA/YR)

[X] SUBSEQUENT ACTION [ ] CONTINUATION [X] CITATION [ ] ORDER DATE 09/18/79 (MO/DA/YR) TIME 1340 (24 HR CLOCK)

SERVED TO Erwin Sass, Project Superintendent OPERATOR Gilbert Corp of Delaware

MINE C/B tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW The chain link hand rails installed on both decks of the Galloway in the service shaft was improperly installed. It was tied together with wire and not secured to all the posts on the perimeter of the Galloway. This one time extension is to allow the operator time to ensure that a proper installation is made

[X] EXTENDED TO: DATE 09/12/79 (MO/DA/YR) TIME 1400 (24 HR CLOCK) [ ] VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

[ ] TERMINATED [ ] MODIFIED [ ] SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 001

SIGNATURE Rodric M Breland 516 (AR)

III 6-93

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325447-1 DATED 08/08/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☐ CONTINUATION ☒ CITATION ☐ ORDER DATE 09/18/79 (MO/DA/YR) TIME 1215 (24 HR CLOCK)

SERVED TO Erwin Sass, Gen. Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-6 Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW Wire numbers 160, 161 & 162 were removed from the overtravel by-pass switches at the V & E hoist. The by-pass function is no longer operable.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

☒ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 001 SIGNATURE Ronald J. Renowden-656 (AR)

76-9 III

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0325430-1 DATED 08/01/79 (MO/DA/YR)

☒ SUBSEQUENT ACTION ☐ CONTINUATION ☒ CITATION ☐ ORDER DATE 09/18/79 (MO/DA/YR) TIME 1245 (24 HR CLOCK)

SERVED TO Erwin Sass, Gen. Supt. OPERATOR Gilbert Corporation of Delaware

MINE C-b Tract MINE I.D. 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW The orange wire was replaced with a green wire, which is the nationally recognized color for ground conductors. This was located at the VE dry.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK)

☒ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 00f SIGNATURE ▶ Ronald J Renowden - 656 (AR)

III G-9 95

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

NO 0327435 DATED 08/07/79 (MO/DA/YR)

[X] SUBSEQUENT ACTION [ ] CONTINUATION [X] CITATION [ ] ORDER DATE 09/18/79 (MO/DA/YR) TIME 1600 (24 HR CLOCK)

SERVED TO Erwin Sass, Project Superintendent OPERATOR Gilbert Corp. of Delaware

MINE CB tract MINE I.D. 05-03149-____ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW Approaches for inspection, testing and maintenance of hoisting equipment has improved to an acceptable level and Christman log sheets indicate that their beginning shift required checks are being performed.

[ ] EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK) [ ] VACATED DATE ___/___/___ (MO/DA/YR) TIME ____ (24 HR CLOCK)

[X] TERMINATED [ ] MODIFIED [ ] SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 001

SIGNATURE Rodric M Beland 516 AR

III 6-96

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
MSHA FORM 7000-3a (3-78)

No 0327245-1 DATED 09/18/79 (MO/DA/YR)

☐ SUBSEQUENT ACTION ☒ CONTINUATION ☒ CITATION ☐ ORDER DATE 09/18/79 (MO/DA/YR) TIME 1354 (24 HR CLOCK)

SERVED TO Erwin Sass, Project Superintendent OPERATOR Gilbert Corp of Delaware

MINE CB tnl MINE I.D 05-03149-___ (CONTRACTOR)

JUSTIFICATION FOR ACTION CHECKED BELOW Allow anyone to go to the pump station again unless it was an emergency and then only with a safety belt and line tied off until a safe means of access is provided.

☐ EXTENDED TO: DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK) ☐ VACATED DATE ___/___/___ (MO/DA/YR) TIME _____ (24 HR CLOCK)

☐ TERMINATED ☐ MODIFIED ☐ SEE SUBSEQUENT ACTION SHEET

TYPE OF INSPECTION 001

SIGNATURE Kelvic M Breland 516 AR

III 6-97

MSHA FORM 7000-3 (3-78)

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE) DATE 12/05/79 TIME 1005 (24 HR CLOCK)

SERVED TO Bob Resch, Project Manager OPERATOR Gilbert Corp. of Delaware

MINE C.B. Oil Shale Venture MINE I.D. 05-03149-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-A-_____ VIOLATION OF SECTION ____-____-__ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0015-00004

TYPE OF INSPECTION 001 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE Two mechanics employed by Gilbert Corp. were not wearing safety glasses while changing cables on the 630 mucking machine, located on the 960' station of the V.E.E. shaft. The men were using an ax and beating it with a hammer to cut the metal cables. (Metal to metal contact.)

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. _____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 12/05/79 (MO/DA/YR) TIME 1005 (24 HR CLOCK) SIGNATURE Michael J. Dennehy 0238 (AR)

ACTION TO TERMINATE Supervisor stopped men and sent one to surface to get safety glasses.

DATE 12/05/79 (MO/DA/YR) TIME 1020 (24 HR CLOCK) SIGNATURE Michael J. Dennehy 0238 (AR) ☐ SEE SUBSEQUENT ACTION SHEET

86-9 III

☒ CITATION (SEE REVERSE) ☐ ORDER OF WITHDRAWAL (SEE REVERSE) DATE 12/05/79 (MO/DA/YR) TIME 1350 (24 HR CLOCK)

SERVED TO Bob Rosebrough, Project Manager OPERATOR Gilbert Corp. of Delaware

MINE C.B. 01 Shale Venture MINE I.D. 05-03142-____ (CONTRACTOR)

TYPE OF ACTION (SEE REVERSE) 104-A-____-____-____ VIOLATION OF SECTION ____-____-____ OF THE ACT OR OF TITLE 30 CODE OF FEDERAL REGULATIONS.

PART AND SECTION 57.0014-00030

TYPE OF INSPECTION 001 ☒ SIGNIFICANT AND SUBSTANTIAL (SEE REVERSE)

CONDITION OR PRACTICE A miner was inside the raised bucket of a 931 loader, scaling the ribs of the production shaft. This loader was not specifically designed for this use.

AREA OR EQUIPMENT

INITIAL ACTION ☐ NOTICE ☐ CITATION ☐ ORDER NO. ____ DATED __/__/__ (MO/DA/YR)

TERMINATION DUE DATE 12/05/79 (MO/DA/YR) TIME 1350 (24 HR CLOCK) SIGNATURE ▶ Michael T. Kennedy 0238 (AR)

ACTION TO TERMINATE Supervisor had man removed from bucket.

DATE 12/05/79 (MO/DA/YR) TIME 1352 (24 HR CLOCK) SIGNATURE ▶ Michael T. Kennedy 0238 (AR) ☐ SEE SUBSEQUENT ACTION SHEET

66-9 III

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TRAFFIC LOAD

III H TRAFFIC LOAD

This section contains data relating to vehicular and passenger load along Piceance Creek road and into the C-b Oil Shale Tract.

A program of monitoring vehicular traffic was initiated in March 1978. Counters were placed along Piceance Creek road at various points to count traffic into Oil Shale Tracts C-a and C-b. These counters were not in operation during the period of this report.

Daily vehicle counts taken at the C-B Guard Shack are presented in Table III H-1. These data were broken down into counts of cars and trucks beginning in May 1979.

The C-b Shale Oil Project began providing regular bus service for employees to and from the C-b Tract on April 1, 1978. In order to help judge the effectiveness of this program, Table III H-2 showing a daily count of work force, and Table III H-3, summarizing bus passenger mile data for 1979 have been prepared. Contractor work force data by shift has been provided starting September 21, 1979 and is on file in Grand Junction.

Table III H-1

VEHICLE COUNT AT C-B TRACT GUARD SHACK

1979

Day / Month		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
January *	Car	4	67	83	48	79	31	19	67	98	78	94	80	23	20	92	82	93	69	55	22	15	59	58	81	70	81	8	6	79	83	72
	Truck																															
February*	Car	72	52	15	11	98	120	88	93	83	38	18	59	90	76	52	56	19	16	11	77	74	70	45	3	8	20	65	67			
	Truck																															
March *	Car	6	43	9	22	104	124	58	70	73	13	7	71	43	64	73	45	31	19	60	81	52	66	73	22	18	97	106	34	46	6	15
	Truck																															
April *	Car	28	95	45	50	79	76	31	7	33	72	48	48	41	14	15	79	68	96	71	74	3	11	60	69	69	64	87	19	7	65	
	Truck																															
May	Car	80	47	66	72	5	8	61	70	56	70	45	9	6	34	40	59	83	92	21	19	53	64	34	55	71	7	4	9	70	65	74
	Truck	19	12	15	8	0	1	11	12	12	9	13	0	0	11	15	8	15	15	0	0	15	23	16	24	5	0	0	0	26	19	17
June	Car	60	9	13	75	77	79	72	61	33	9	86	77	67	91	82	15	9	22	55	9	2	83	93	75	47	84	89	67	64	11	
	Truck	19	1	0	18	26	14	24	20	0	0	28	33	22	32	19	10	0	12	11	0	0	1	20	22	5	19	15	18	18	0	
July	Car	8	54	67	37	61	90	16	10	59	38	64	54	27	10	17	48	95	85	79	65	46	10	73	78	50	54	71	23	14	57	62
	Truck	0	17	20	3	30	12	0	0	13	22	24	31	15	0	10	23	35	23	26	15	2	0	28	21	18	22	22	4	6	23	21
August	Car	56	56	49	0	6	60	65	66	71	44	17	23	78	41	87	62	78	15	14	46	76	45	46	72	8	13	73	85	41	36	54
	Truck	18	19	11	3	0	4	12	19	6	4	0	1	14	14	11	4	9	0	0	6	6	6	18	8	1	0	15	1	14	17	8
September	Car	16	14	15	60	51	51	44	31	12	72	59	58	39	28	13	11	39	72	67	56	44	14	12	41	47	54	26	50	40	13	
	Truck	0	0	0	11	17	9	10	5	0	5	10	9	15	11	2	0	15	21	22	16	3	0	0	17	22	13	15	9	0	0	
October	Car	17	100	87	87	84	4	13	61	65	38	61	67	14	6	69	62	75	67	30	26	7	77	64	72	29	29	2	No	43	50	65
	Truck	12	19	19	4	18	0	0	9	21	19	15	14	0	2	8	13	11	11	8	13	1	11	18	9	9	8	0	Data	10	11	17
November	Car	67	53	25	18	42	81	82	75	59	19	20	80	61	25	46	64	17	10	18	45	41	7	20	16	2	50	21	41	28	14	
	Truck	12	9	2	3	12	15	11	8	12	3	2	9	11	17	11	10	0	0	8	9	1	0	1	0	1	3	10	4	6	2	
December	Car	28	22	49	70	66	65																									
	Truck	9	0	6	20	17	5																									

* Total vehicle count.

Table III H-2

TRACT C-b CONTRACTOR DAILY WORK FORCE

DAY / MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	MONTHLY TOTAL
SEPTEMBER 1979	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	189	62	40	196	203	195	200	193	64	38	-	-
OCTOBER 1979	189	194	201	199	189	58	42	195	198	210	196	191	57	38	197	210	211	206	194	48	48	194	217	210	210	204	61	45	203	204	210	5029
NOVEMBER 1979	210	191	77	38	204	210	213	171	201	51	50	206	208	213	215	205	75	38	201	205	177	13	103	43	40							
DECEMBER 1979																																
JANUARY 1980																																
FEBRUARY 1980																																
MARCH 1980																																
APRIL 1980																																
MAY 1980																																
JUNE 1980																																
JULY 1980																																
AUGUST 1980																																
SEPTEMBER 1980																																
OCTOBER 1980																																
NOVEMBER 1980																																
DECEMBER 1980																																

Table III H-3

BUS PASSENGER MILE REPORT SUMMARY - 1979

Month		No. Half Trips Rifle to C-B	No. Half Trips C-B to Rifle	No. Half Trips Meeker to C-B	No. Half Trips C-B to Meeker	Total Passengers	Cumm. Total Passengers	Total Passenger Miles	Cumm. Total Passenger Miles
January	1979	75*		37*		4,820 599	4,820 599	8,730 9,553	8,730 9,553
February	1979	21*		7*		2,403 176	7,223 775	96,756 7,744	105,486 17,297
March	1979	31*		31*		5,525 783	12,748 1,558	221,000 34,452	326,486 51,749
April	1979	45*		15*		5,372 439	18,120 1,997	216,492 19,316	542,978 71,065
May	1979	79	80	26	26	4,555 725	22,675 2,722	204,975 34,800	747,953 105,865
June	1979	109	109	70	70	4,223 759	26,898 3,481	190,035 36,432	937,988 142,297
July	1979	110	110	67	67	4,879 634	31,777 4,115	219,555 30,432	1,157,543 172,729
August	1979	70	74	24	27	5,135 752	36,912 4,867	231,075 37,600	1,388,618 210,329
September	1979	119	119	82	82	4,691 645	41,603 5,512	211,095 64,500	1,599,713 274,829
October	1979	139	139	93	93	6,083 893	47,686 6,405	273,735 89,300	1,873,448 364,129

* No. of round trips. (Data not available on half trips).

III I GEOLOGY

The surface geology report was presented in Quarterly Data Report #5 and in the Annual Summary and Trends Report.

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DATA AUTOMATION

IV DATA AUTOMATION

The environmental data base at present is partially manual and partially computerized. For purposes of analysis, data specificity, data security, and data archiving, the data base is being further computerized. It is the intent that all "indicator variables" be entered into RAMIS (Rapid Access Management Information System). Toward this end computer codes have been designed for all environmental station locations.

This section presents the status of the automated data base, station location data, and a cross-reference list of four-digit computer codes and station monitoring codes.

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IV A AUTOMATION STATUS

This section presents the status of the automated data base for the C-b Tract environmental data on the Occidental Petroleum Corporation computer system in Houston, Texas.

RAMIS II is a computerized data base management system (DBMS) used by Occidental Oil Shale, Inc. on the C-b Shale Oil Project via the Occidental Computer Center in Houston, Texas. C-b Shale Oil Tract environmental data are being prepared and entered into RAMIS DBMS as a means of making relevant data available for subsequent retrievals for use in reports and impact analyses. The use of this system provides an economical way to store and retrieve selected data in desired formats for reports and for input to analytic models requiring the data. Data are also archived within this system and through magnetic tapes containing the source raw data.

The following environmental data are entered into RAMIS DBMS as of January 1980:

Water Quality	
Springs and Seeps	Oct. 1974 thru Oct. 1979
Alluvial Wells	Oct. 1974 thru Oct. 1979
Upper Aquifer Wells	Oct. 1974 thru Oct. 1979
Lower Aquifer Wells	Oct. 1974 thru Oct. 1979
Well Water Levels	
Water Levels	Oct. 1974 thru Oct. 1979
Water Augmentation Plan	
Springs and Seeps	July 1979 thru Oct. 1979
Upper Aquifer Wells	Aug. 1979 thru Oct. 1979
Lower Aquifer Wells	Aug. 1979 thru Oct. 1979
Precipitation	Jan. 1979 thru Sept. 1979
National Pollutant Discharge Elimination System	
Water Quality Data	July 1979 thru Oct. 1979
Air Quality	
Small Trailer (Station AB21, AB22, AB24, AD42, AD56) Oct. 1974 thru Oct. 1979	
Large Trailer (Station AB20) Oct. 1974 thru Oct. 1979	
Large Trailer (Station AB23) Oct. 1974 thru Oct. 1979	
Meteorological Tower (Station AA23) Oct. 1974 thru Oct. 1979	
Microclimate Data	Oct. 1974 thru Oct. 1979

Figures IV A-1 through IV A-7 show graphically the status of water levels, water quality, air quality, meteorological and microclimatic data that have been entered into RAMIS DBMS as of November 1, 1979.

Data in RAMIS reside in 12 files which are presented in Tables IV A-1 through IV A-12. The tables present the list of fieldnames and synonyms. Additional data in the tables are the field and file structure specifications.

Figure IV A-1 HYDROLOGY MONITORING/REPORTING/DATA BASE STATUS

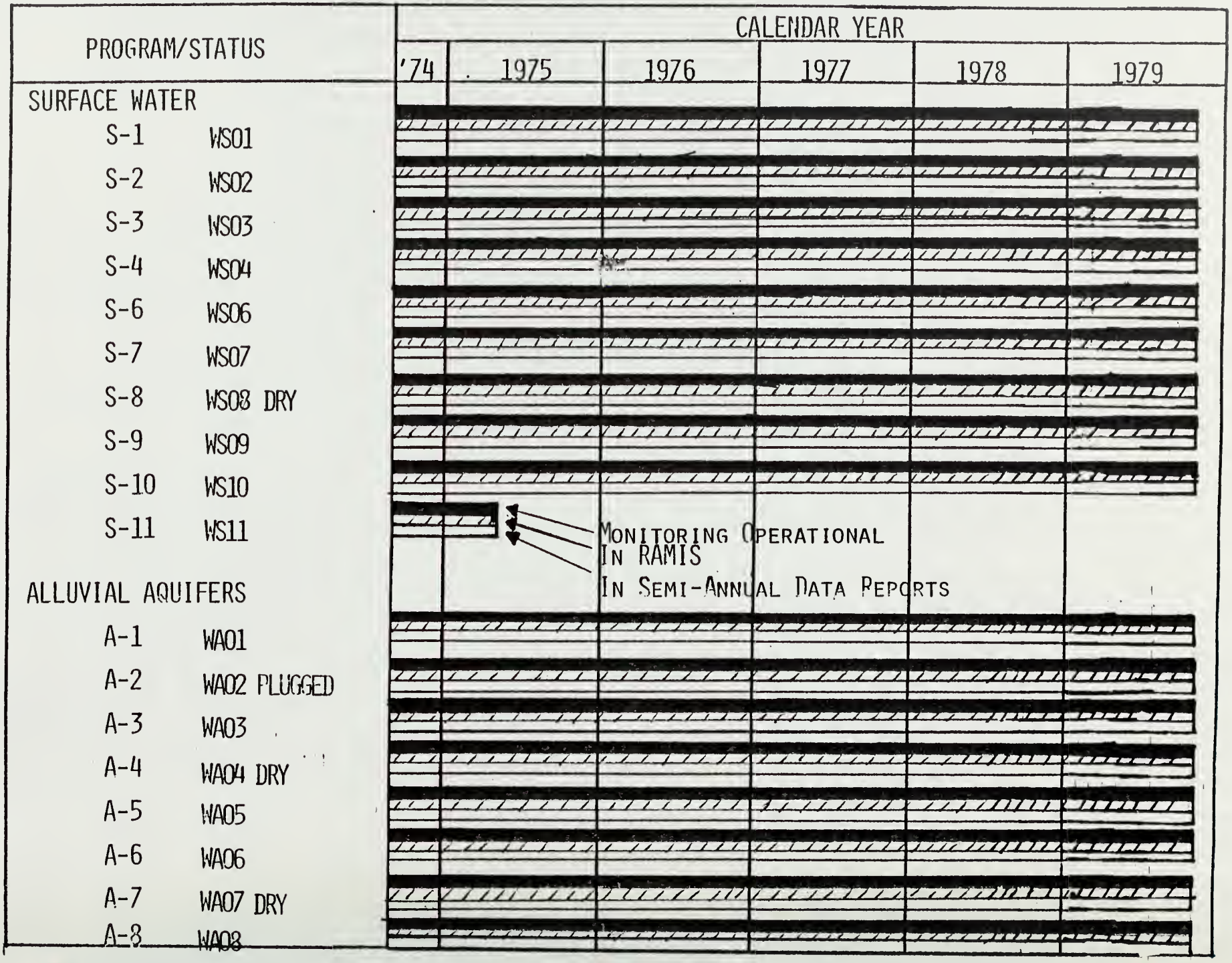

Figure IV A-2

HYDROLOGY MONITORING/REPORTING/DATA BASE STATUS

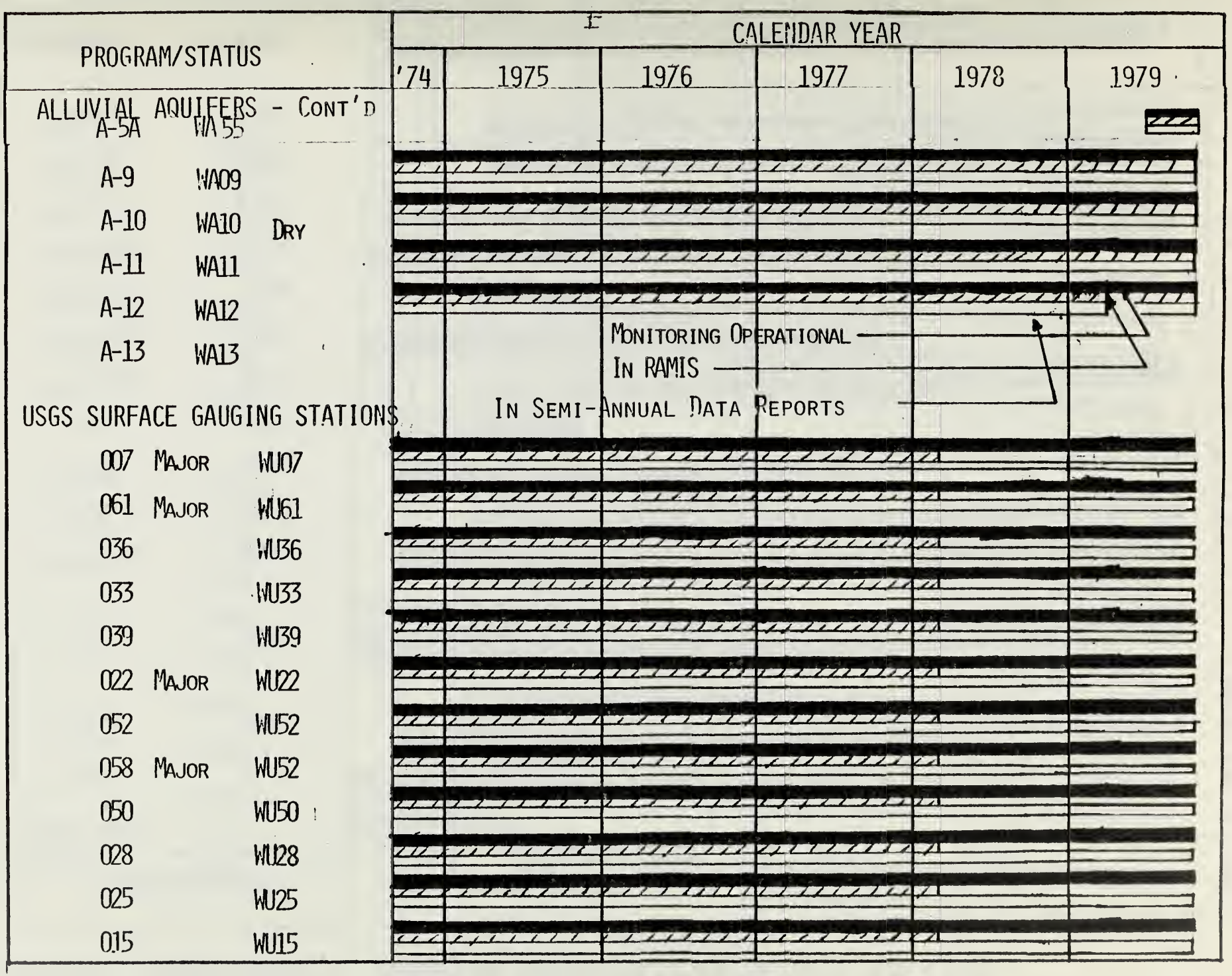

Figure IV A-3

HYDROLOGY MONITORING/REPORTING/DATA BASE STATUS

...ATER LEVELS)

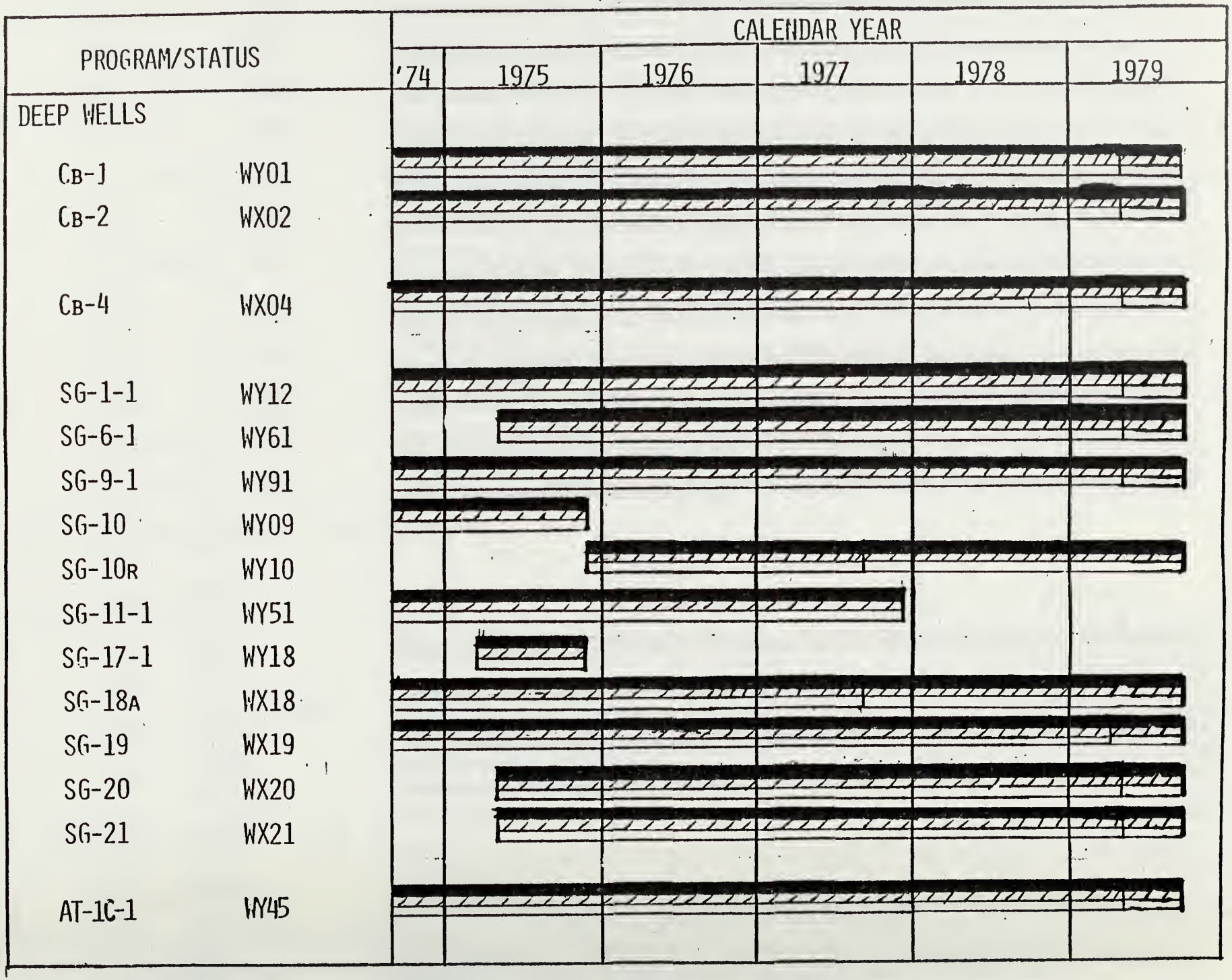

Figure IV A-3
(Continued)

HYDROLOGY MONITORING/REPORTING/DATA BASE STATUS
(WATER LEVELS)

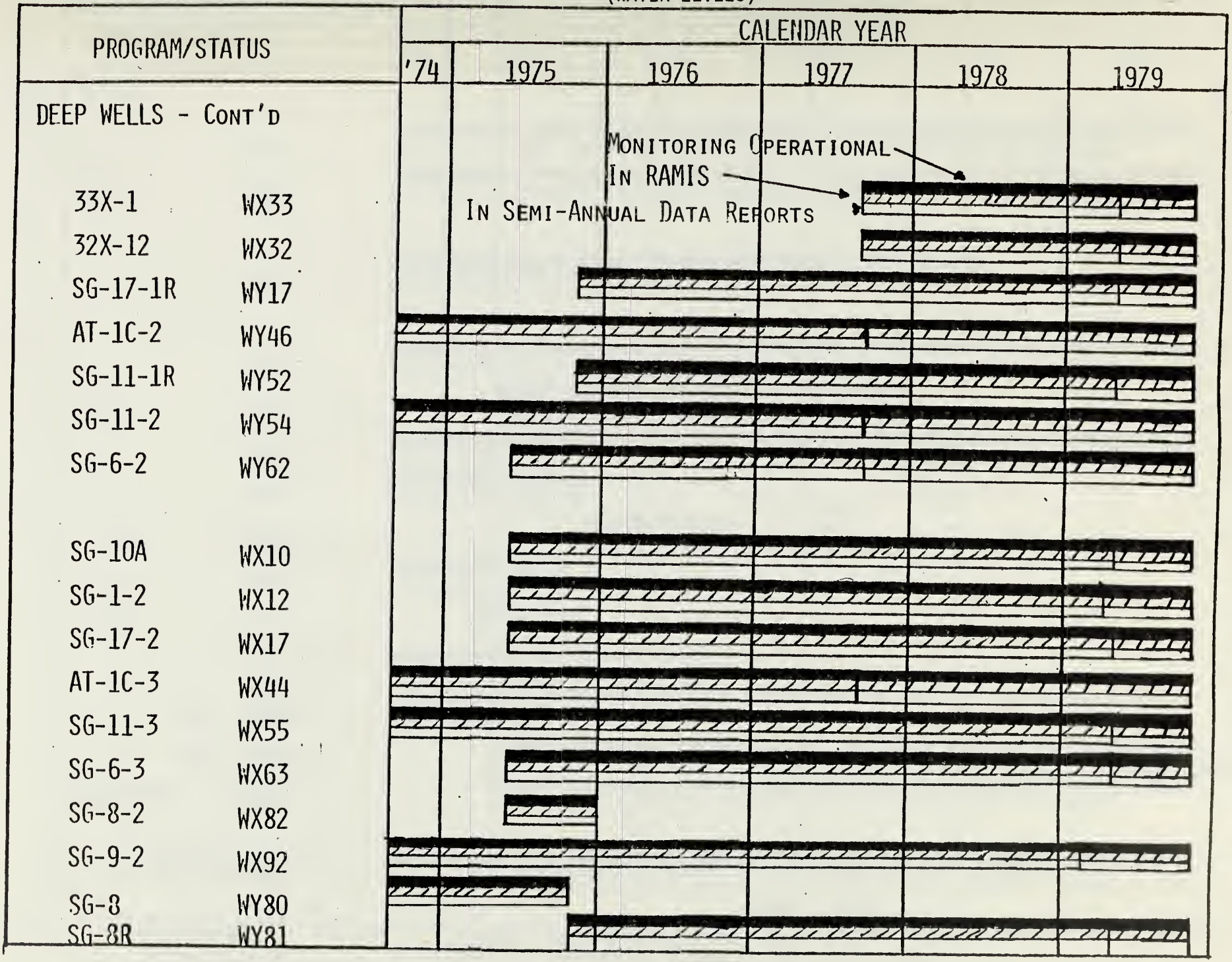

Figure IV A-3
(Continued)

HYDROLOGY MONITORING/REPORTING/DATA BASE STATUS
(WATER LEVELS)

PROGRAM/STATUS	CALENDAR YEAR '74	1975	1976	1977	1978	1979
DEEP WELLS - CONT'D						
SG-1A WX11						
41X-1 WX41						

Figure IV A-4

HYDROLOGY MONITORING/REPORTING/DATA BASE STATUS

(WATER QUALITY)

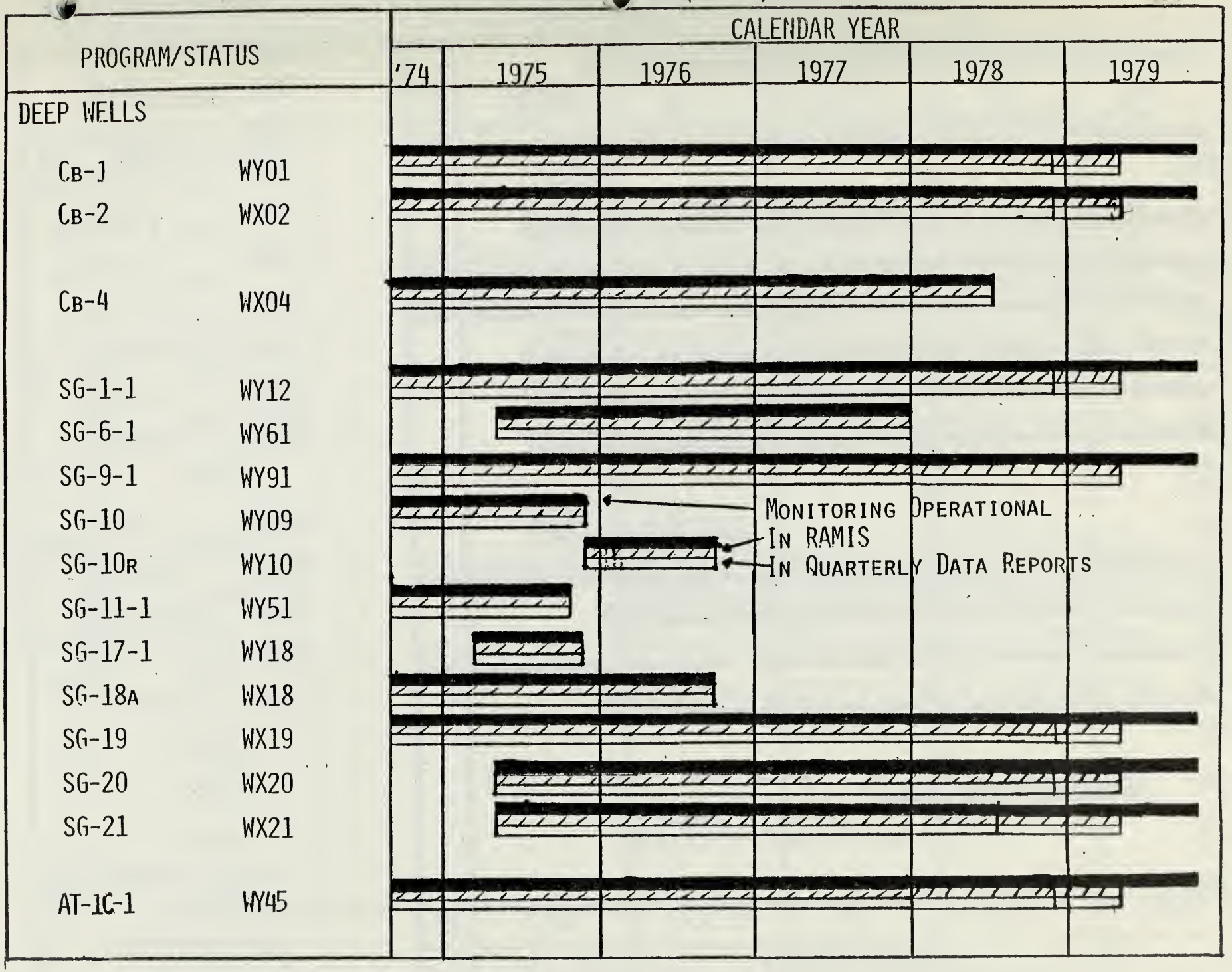

Figure IV A-4
(Continued)

HYDROLOGY MONITORING/REPORTING/DATA BASE STATUS
(WATER QUALITY)

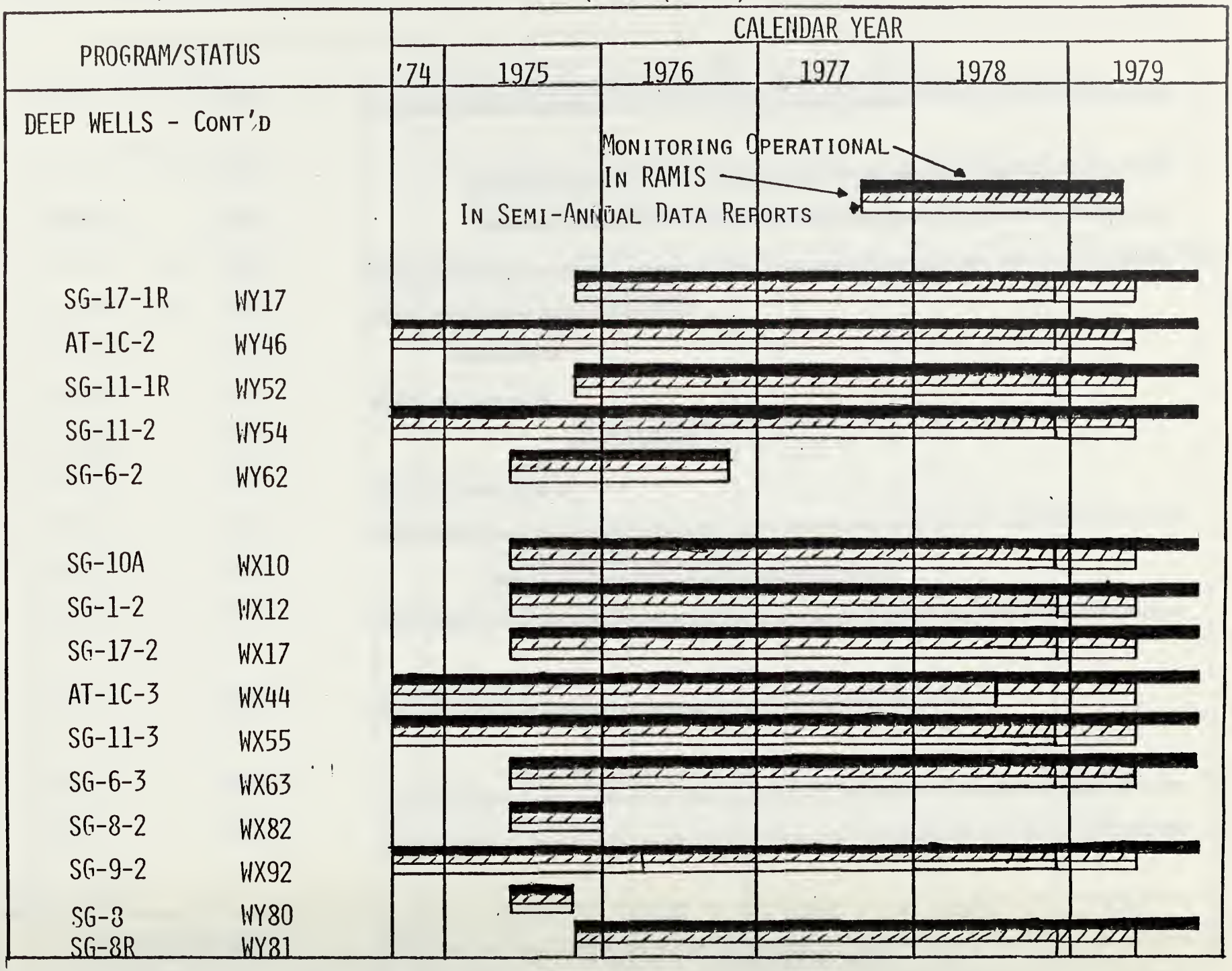

Figure IV A-5

HYDROLOGY MONIT[illegible]/REPORTING/DATA BASE STATUS

(WATER LEVELS)

PROGRAM/STATUS		CALENDAR YEAR '74	1975	1976	1977	1978	1979
WAP - SURFACE WATER							
CER-1	WS21						
B-3	WS22						
H-3	WS23						
F-3	WS24						
FIG 4-A	WS25						
W-4	WS26						
W-9	WS27						
CER-7	WS28						
S-9	WS29						
P3 & P3A	WS30						
CER-6	WS31						
W-2	WS32						
S-2	WS33						
W-3	WS34						
FIG 4	WS35						

Figure IV A-5
(Continued)

HYDROLOGY MONITORING/REPORTING/DATA BASE STATUS (WATER LEVELS)

PROGRAM/STATUS	CALENDAR YEAR '74	1975	1976	1977	1978	1979
WAP-WELLS						
TH75-5A WX64						
TH75-13A WX65						
TH75-18A WX67						
TH75-9A WX69						
CER RB-D-02 WX71						
TH75-15A WX72						
UNION 8-1 WX73						
COLONY 12-596 WX75						
TH75-5B WY64						
TH75-13B WY65						
EQUITY-1 WY66						
TH75-18B WY67						
TH75-10B WY68						
TH75-9B WY69						

Figure IV A-5
(Continued)

HYDROLOGY MONITORING/REPORT/DATA BASE STATUS
(WATER LEVELS)

PROGRAM/STATUS		CALENDAR YEAR '74	1975	1976	1977	1978	1979
WAP-WELLS - CONT'D							
EQUITY-SULFUR - 1A	WY70						
CER RB-D-03	WY71						
TH75-15B	WY72						
TG71-3	WY75						
TG71-5	WY76						
GETTY 9-40	WY77						
TG71-4	WY78						
EQUITY BS-13	WY79						
GREENO 4-4	WV01						
OLDLAND 3	WV02						
GP-17X-BG	WV03						
BUTE 25	WV04						
LIBERTY BELL 12	WV05						

Figure IV A-6 AIR QUALITY MONITORING/REPORTING/DATA BASE STATUS

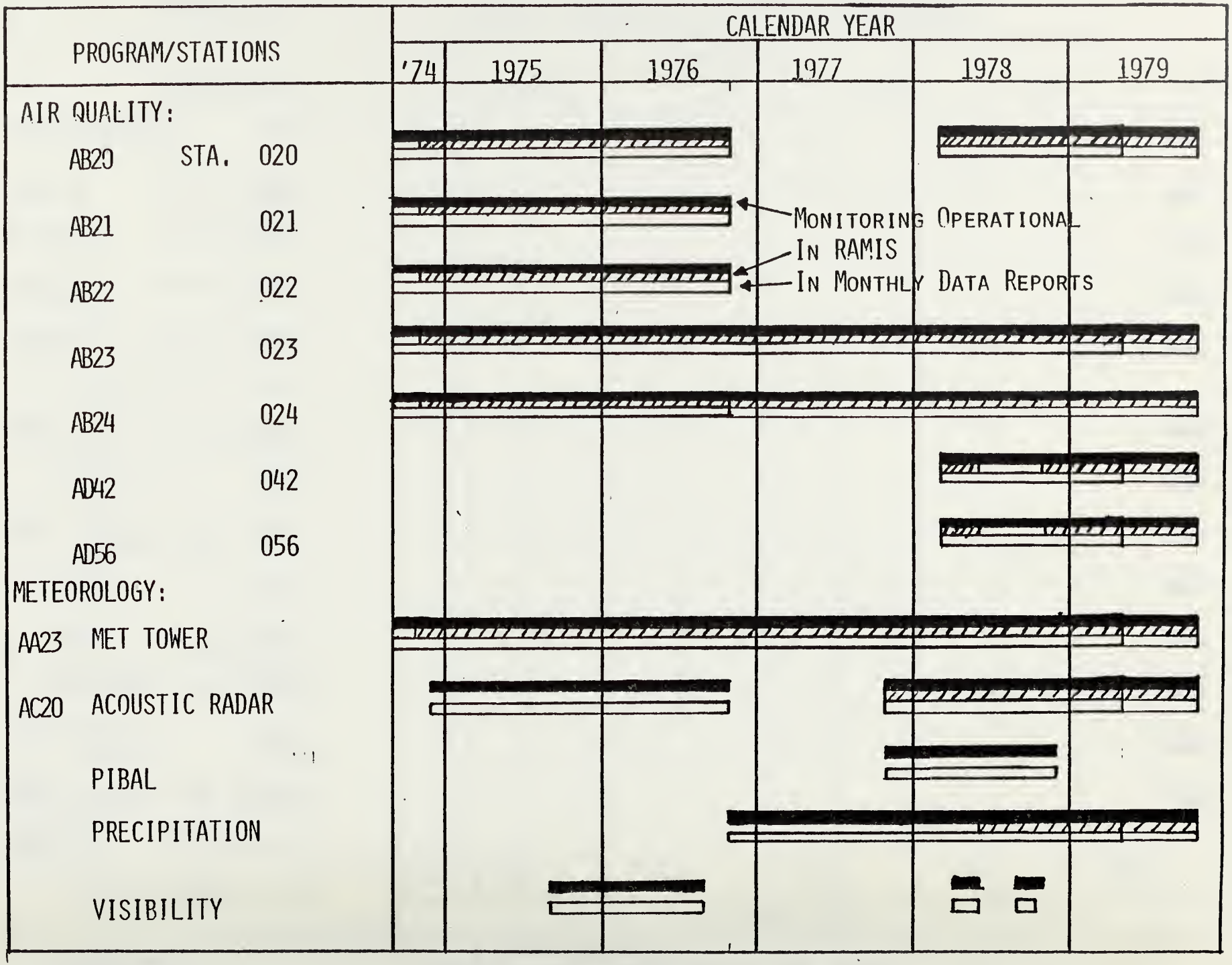

Figure IV A-7 BIOLOGY MONITORI... EPORTING/DATA BASE STATUS

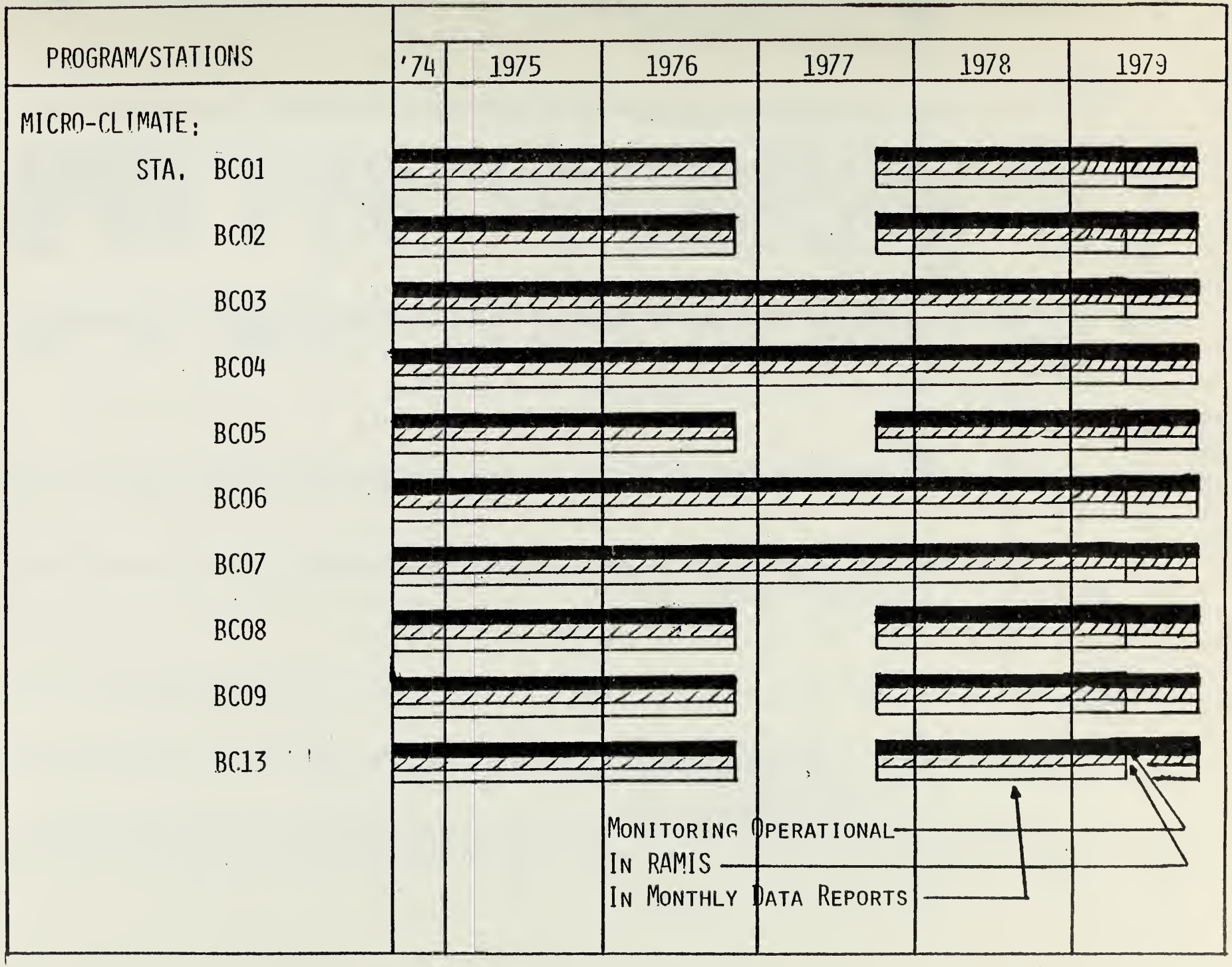

Table IV A-1

DESCRIPTION FOR RAMIS FILE WTRLEV

LIST	FIELDNAME	SYNONYM	LEVEL	LEVEL TYPE	SEGMENT FACTOR	TYPE	LENGTH
1	YEAR	YR	1	S	1	I	2
2	MONTH	MO	2	S	0	I	2
3	DAY	DY	2	S	0	I	2
4	LOCATION	LOC	2	S	0	A	4
5	STATUS	ST	2	S	0	A	6
6	GRDLEVEL	GL	4	V	0	F	6.1
7	MEASPTEL	MP	4	V	0	F	6.1
8	DEPTH	DP	5	S	0	F	7.2
9	WATERTEMP	TEMP	5	S	0	F	5.1
10	PH	PH	5	S	0	F	4.1
11	DISSO2	DO	5	S	0	F	5.1
12	SPECCOND	SPC	5	S	0	F	6.1

Table IV A-2

DESCRIPTION FOR RAMIS FILE WTRQUAL
01/05/80

LIST	FIELDNAME	SYNONYM	LEVEL	LEVEL TYPE	SEGMENT FACTOR	TYPE	LENGTH
1	LOCATION	LOC	1	S	10	A	4
2	YEAR	YR	2	S	1	I	2
3	MONTH	MO	3	S	1	I	2
4	DAY	DY	4	S	1	I	2
5	ALKALINITY	ALK	4	S	1	F	7.1
6	ALUMINUM	AL	4	S	1	F	6.3
7	ARSENIC	ARS	4	S	1	F	5.3
8	BACTERIA	BACT	4	S	1	F	4.1
9	BARIUM	BA	4	S	1	F	5.2
10	BICARBONATE	HCO3	4	S	1	F	7.1
11	BIOOXYDEMD	BOD	4	S	1	F	6.1
12	BORON	B	4	S	1	F	6.2
13	BROMIDE	BR	4	S	1	F	6.3
14	TOTALCOLIF	TCOLIF	4	S	1	F	4.1
15	CADMIUM	CD	4	S	1	F	6.3
16	CALCIUM	CA	4	S	1	F	6.1
17	CARBONATE	CO3	4	S	1	F	6.1
18	CHLORIDE	CL	4	S	1	F	7.1
19	CHROMIUM	CR	4	S	1	F	6.3
20	CHEMOXYDEM	COD	4	S	1	F	7.1
21	COPPER	CU	4	S	1	F	6.3
22	DISSOXY	DO	4	S	1	F	4.1
23	DISSORGCARB	DOC	4	S	1	F	5.1
24	LASSURF	LAS	4	S	1	F	6.2
25	FLORIDE	F	4	S	1	F	6.2
26	HARDNESS	HARD	4	S	1	F	7.1
27	IRON	FE	4	S	1	F	5.2
28	KJELDNIT	KJN	4	S	1	F	5.1
29	LEAD	PB	4	S	1	F	6.3
30	LITHIUM	LI	4	S	1	F	5.2
31	MAGNESIUM	MG	4	S	1	F	5.1
32	MANGANESE	MN	4	S	1	F	6.3
33	MERCURY	HG	4	S	1	D	8.5
34	MOLYBDENUM	MOLY	4	S	1	F	6.3
35	NICKEL	NI	4	S	1	F	6.3
36	NITRATE	NO3	4	S	1	F	6.2
37	OILGREASE	OLGR	4	S	1	F	5.1
38	S203	S203	4	S	1	F	5.1
39	PH	PH	4	S	1	F	3.1
40	POTASSIUM	K	4	S	1	F	5.1
41	ALPHARADIO	RA	4	S	1	F	5.1
42	BETARADIO	BTR	4	S	1	F	5.1
43	RADIUMRADIO	RR	4	S	1	F	5.1
44	SELENIUM	SE	4	S	1	F	6.3
45	SILVER	AG	4	S	1	F	6.3
46	SODIUM	NA	4	S	1	F	7.1
47	SOLIDSDISS	TDS	4	S	1	F	7.1
48	SOLUSOLIDS	SOLS	4	S	1	F	7.1

DESCRIPTION FOR RAMIS FILE WTRQUAL
01/05/80

LIST	FIELDNAME	SYNONYM	LEVEL	LEVEL TYPE	SEGMENT FACTOR	TYPE	LENGTH
49	SPECCOND	SPC	4	S	1	F	7.1
50	STRONTIUM	SR	4	S	1	F	4.1
51	SULFATE	SO4	4	S	1	F	6.1
52	TEMP	TEMP	4	S	1	F	4.1
53	ZINC	ZN	4	S	1	F	6.3
54	TOTORGCARB	TOC	4	S	1	F	5.1
55	PHENOLS	PHEN	4	S	1	F	6.4
56	CYANIDE	CYAN	4	S	1	F	6.3
57	AMMONIA	NH3	4	S	1	F	8.3
58	PHOSPHATE	PHOSAT	4	S	1	F	6.2
59	SILICA	SILIC	4	S	1	F	6.1
60	URANIUM	U	4	S	1	F	5.3
61	SUSSOLID	SUSS	4	S	1	F	7.1
62	THORIUM	TH	4	S	1	F	6.3
63	CESIUM	CS	4	S	1	F	6.3
64	IODINE	I	4	S	1	F	6.3
65	ANTIMONY	SB	4	S	1	F	6.3
66	ZIRCONIUM	ZR	4	S	1	F	6.3
67	YTTRIUM	Y	4	S	1	F	5.3
68	RUBIDIUM	RB	4	S	1	F	6.3
69	GERMANIUM	GE	4	S	1	F	6.3
70	GALLIUM	GA	4	S	1	F	6.3
71	TITANIUM	TI	4	S	1	F	6.3
72	SCANDIUM	SC	4	S	1	F	6.3
73	TUNGSTEN	W	4	S	1	F	6.3
74	COBALT	CO	4	S	1	F	6.3
75	VANADIUM	V	4	S	1	F	6.3
76	BERYLLIUM	BE	4	S	1	F	5.3
77	HYDROXIDES	OH	4	S	1	F	5.1
78	CONDHYDCARB	CH	4	S	1	F	7.3
79	PALK	PA	4	S	1	F	7.1
80	MOALK	MA	4	S	1	F	7.1
81	DUMMY10		4	S	1	F	7.3

DESCRIPTION FOR RAMIS FILE USGS
01/05/79

LIST	FIELDNAME	SYNONYM	LEVEL	LEVEL TYPE	SEGMENT FACTOR	TYPE	LENGTH
1	LOCATION		1		0	A	4
2	YEAR		2		0	I	2
3	MONTH		3		0	I	2
4	DAY		4		0	I	2
5	ALK		5		0	F	7.2
6	NH3		5		0	F	7.2
7	B		5		0	F	7.2
8	CA		5		0	F	7.2
9	F		5		0	F	7.2
10	FE		5		0	F	7.2
11	MG		5		0	F	7.2
12	K		5		0	F	7.2
13	SIO2		5		0	F	7.2
14	NA		5		0	F	7.2
15	HCO3		5		0	F	7.2
16	CO3		5		0	F	7.2
17	CL		5		0	F	7.2
18	SPECCOND		5		0	F	7.2
19	TDS		5		0	F	7.2
20	KJELN2		5		0	F	7.2
21	NO32		5		0	F	7.2
22	AS		5		0	F	7.2
23	MN		5		0	F	7.2
24	PO4		5		0	F	7.2
25	DOC		5		0	F	7.2
26	SOC		5		0	F	7.2
27	SO4		5		0	F	7.2
28	SED		5		0	F	7.2
29	WEATHER		5		0	F	7.2
30	PH		5		0	F	7.2
31	TEMP		5		0	F	7.2
32	FLOW		5		0	F	7.2
33	AL		5		0	F	7.2
34	BR		5		0	F	7.2
35	BA		5		0	F	7.2
36	CD		5		0	F	7.2
37	CU		5		0	F	7.2
38	CR		5		0	F	7.2
39	OG		5		0	F	7.2
40	PB		5		0	F	7.2
41	LI		5		0	F	7.2
42	HG		5		0	F	7.2
43	MO		5		0	F	7.2
44	SE		5		0	F	7.2
45	S		5		0	F	7.2
46	ZN		5		0	F	7.2
47	CN		5		0	F	7.2
48	SR		5		0	F	7.2
49	COLI45		5		0	F	7.2
50	COLI7		5		0	F	7.2
51	STRFP		5		0	F	7.2
52	TCOLI		5		0	F	7.2
53	COD		5		0	F	7.2
54	BOD		5		0	F	7.2
55	PHENOL		5		0	F	7.2
56	ESCAN		5		0	F	7.2
57	DGAR		5		0	F	7.2
58	DGBR		5		0	F	7.2
59	SGAR		5		0	F	7.2
60	SGBR		5		0	F	7.2
61	HARD		5		0	F	7.2

Table IV A-5

DESCRIPTION FOR RAMIS FILE NPDIS
(NPDES File)

LIST	FIELDNAME	SYNONUM	LEVEL	LEVEL TYPE	SEGMENT FACTOR	TYPE	LENGTH
1	LOCATION	LOC	1	S	1	A	4
2	YEAR	YR	1	S	1	I	2
3	MONTH	MO	1	S	1	I	2
4	DAY	DY	1	S	1	I	2
5	FLOW	FLW	2	S	0	F	6.1
6	TOTSOLSOLID	TSS	2	S	0	F	6.1
7	TOTDISSOLID	TDS	2	S	0	F	6.1
8	FLORIDE	F	2	S	0	F	6.2
9	BORON	B	2	S	0	F	6.2
10	AMMONASN	NH3	2	S	0	F	6.2
11	PHENOL	PHEN	2	S	0	F	6.3
12	ALUMINUM	AL	2	S	0	F	6.1
13	IRON	FE	2	S	0	F	6.2
14	OILGREASE	OG	2	S	0	I	5
15	PH	PH	2	S	0	F	5.2
16	CADMIUM	CD	2	S	0	F	6.2
17	COPPER	CU	2	S	0	F	6.2
18	MERCURY	HG	2	S	0	F	6.4
19	SILVER	AG	2	S	0	F	6.2
20	ZINC	ZN	2	S	0	F	6.2

DESCRIPTION FOR RAMIS FILE STLAIR (Small Trailer File)
05/02/75

LIST	FIELDNAME	SYNONYM	LEVEL	LEVEL TYPE	SEGMENT FACTOR	TYPE	LENGTH
1	TRAILER	TRL	1	S	3	A	3
2	YEAR	YR	2	S	0	A	2
3	MONTH	MO	2	S	0	A	2
4	DAY	DY	3	S	31	A	2
5	HOUR	HR	3	S	31	A	2
6	SULFDIOX	SO2	3	S	31	F	6.1
7	WINDSP30	WS	3	S	31	F	6.1
8	WINDDIR30	WD	3	S	31	F	6.1
9	RELATHUMID	RH	3	S	31	F	6.1
10	TEMINTRL	TIN	3	S	31	F	6.1
11	TEMOUT30	TOUT	3	S	31	F	6.1
12	HYDROGSULF	H2S	3	S	31	F	6.1
13	LINEVOLT	VOLT	3	S	31	F	6.1
14	BARPRESS	PRES	3	S	31	F	6.1
15	WINDSTDDEV	WSD	3	S	31	F	6.1
16	RAINFALL	RAIN	3	S	31	F	6.1

NUMBER OF RECORDS IN TABLE= 16 LINES= 16

>

DESCRIPTION FOR RAMIS FILE LTLAIR (Large Trailer File)
05/02/75

LIST	FIELDNAME	SYNONYM	LEVEL	LEVEL TYPE	SEGMENT FACTOR	TYPE	LENGTH
1	TRAILER	TRL	1	S	2	A	3
2	YEAR	YR	2	S	0	A	2
3	MONTH	MO	2	S	0	A	2
4	DAY	DY	3	S	31	A	2
5	HOUR	HR	3	S	31	A	2
6	NITROGOX	NOX	3	S	31	F	6.1
7	NITRICOX	NO	3	S	31	F	6.1
8	SULFDIOX	SO2	3	S	31	F	6.1
9	WINDSP30	WS	3	S	31	F	6.1
10	WINDDIR30	WD	3	S	31	F	6.1
11	RELATHUMID	RH	3	S	31	F	6.1
12	TEMINTRL	TIN	3	S	31	F	6.1
13	TEMOUT30	TOUT	3	S	31	F	6.1
14	SOLRAD	SR	3	S	31	F	6.1
15	HYDROGSULF	H2S	3	S	31	F	6.1
16	LINEVOLT	VOLT	3	S	31	F	6.1
17	TOTHYDCARB	THC	3	S	31	F	6.1
18	METHANE	CH4	3	S	31	F	6.1
19	CARBMONOX	CO	3	S	31	F	6.1
20	OZONE	O3	3	S	31	F	6.1
21	BARPRESS	PRES	3	S	31	F	6.1
22	WINDSTDDEV	WSD	3	S	31	F	6.1
23	RAINFALL	RAIN	3	S	31	F	6.1
24	NITROGDIOX	NO2	3	S	31	F	6.1
25	NONMETHC	NMHC	3	S	31	F	6.1

NUMBER OF RECORDS IN TABLE= 25 LINES= 25

Table IV A-8

DESCRIPTION FOR RAMIS FILE METAIR (Meteorological Tower File)
05/02/78

I	FIELDNAME	SYNONYM	LEVEL	LEVEL TYPE	SEGMENT FACTOR	TYPE	LENGTH
1	TOWER	TOW	1	S	1	A	3
2	YEAR	YR	2	S	0	A	2
3	MONTH	MO	2	S	0	A	2
4	DAY	DY	3	S	31	A	2
5	HOUR	HR	3	S	31	A	2
6	WINDSP8	WS1	3	S	31	F	6.1
7	WINDDIR8	WD1	3	S	31	F	6.1
8	RELHUM8	RH1	3	S	31	F	6.1
9	TEMP8	TMP1	3	S	31	F	6.1
10	WINDSP30	WS2	3	S	31	F	6.1
11	WINDDIR30	WD2	3	S	31	F	6.1
12	RELHUM30	RH2	3	S	31	F	6.1
13	TEMP30	TMP2	3	S	31	F	6.1
14	WINDSP100	WS3	3	S	31	F	6.1
15	WINDDIR100	WD3	3	S	31	F	6.1
16	RELHUM100	RH3	3	S	31	F	6.1
17	TEMP100	TMP3	3	S	31	F	6.1
18	WINDSP200	WS4	3	S	31	F	6.1
19	WINDDIR200	WD4	3	S	31	F	6.1
20	RELHUM200	RH4	3	S	31	F	6.1
21	TEMP200	TMP4	3	S	31	F	6.1
22	DELTTEMP1	DT1	3	S	31	F	6.1
23	DELTTEMP2	DT2	3	S	31	F	6.1
24	BIVWS30	BWS1	3	S	31	F	6.1
25	HORWD30	HWD1	3	S	31	F	6.1
26	VERTWD30	VWD1	3	S	31	F	6.1
27	BIVWS100	BWS2	3	S	31	F	6.1
28	HORWD100	HWD2	3	S	31	F	6.1
29	VERTWD100	VWD2	3	S	31	F	6.1
30	BIVWS200	BWS3	3	S	31	F	6.1
31	HORWD200	HWD3	3	S	31	F	6.1
32	VERTWD200	VWD3	3	S	31	F	6.1
33	WINDSD8	WDV1	3	S	31	F	6.1
34	WINDSD30	WDV2	3	S	31	F	6.1
35	WINDSD100	WDV3	3	S	31	F	6.1
36	WINDSD200	WDV4	3	S	31	F	6.1
37	HWINDSD30	HSD1	3	S	31	F	6.1
38	VWINDSD30	VSD1	3	S	31	F	6.1
39	HWINDSD100	HSD2	3	S	31	F	6.1
40	VWINDSD100	VSD2	3	S	31	F	6.1
41	HWINDSD200	HSD3	3	S	31	F	6.1
42	VWINDSD200	VSD3	3	S	31	F	6.1

NUMBER OF RECORDS IN TABLE= 42 LINES= 42

DESCRIPTION FOR PAMIS FILE MRIDATA
07/17/79

LIST	FIELDNAME	SYNONYM	LEVEL	LEVEL TYPE	SEGMENT FACTOR	TYPE	LENGTH
1	STATION	ST	1	S	4	A	4
2	YEAR	YR	2	S	0	A	2
3	MONTH	MO	2	S	0	A	2
4	DAY	DY	3	S	31	A	2
5	HOUR	HR	3	S	31	A	2
6	WINDSPEED	WS	3	S	31	F	6.1
7	WINDDIR	WD	3	S	31	F	6.1
8	TEMPERATURE	TEMP	3	S	31	F	6.1

NUMBER OF RECORDS IN TABLE= 8 LINES= 8

Table IV A-10

DESCRIPTION FOR RAMIS FILE PARTIC
05/22/78

LIST	FIELDNAME	SYNONYM	LEVEL	LEVEL TYPE	SEGMENT FACTOR	TYPE	LENGTH
1	TRAILER	TRL	1	S	4	A	4
2	YEAR	YR	2	S	0	I	2
3	MONTH	MO	2	S	0	I	2
4	DAY	DY	3	S	31	I	2
5	PARTICULATE	PART	3	S	31	F	6.1

DESCRIPTION FOR RAMIS FILE ACRADAR
04/18/79

LIST	FIELDNAME	SYNONYM	LEVEL	LEVEL TYPE	SEGMENT FACTOR	TYPE	LENGTH
1	TRAILER	TRL	1	S	1	A	4
2	YEAR	YR	2	S	0	A	2
3	MONTH	MO	2	S	0	A	2
4	DAY	DY	3	S	31	A	2
5	HOUR	HR	3	S	31	A	2
6	MIXHGT	MIX	3	S	31	F	6.1
7	STBCLS1	STB1	3	S	31	F	6.1
8	INVERHGT	INV	3	S	31	F	6.1
9	STBCLS2	STB2	3	S	31	F	6.1

NUMBER OF RECORDS IN TABLE= 9 LINES= 9

Table IV A-12

DESCRIPTION FOR RAMIS FILE MICRO (Microclimate File)
07/13/78

LIST	FIELDNAME	SYNONYM	LEVEL	LEVEL TYPE	SEGMENT FACTOR	TYPE	LENGTH
1	STATION	ST	1	S	2	A	4
2	YEAR	YR	2	S	0	I	2
3	MONTH	MO	3	S	0	I	2
4	DAY	DY	4	S	0	I	2
5	STATID	SID	5	S	0	A	2
6	TEMPMX1M	TPMX	5	S	0	F	5.1
7	TEMPMN1M	TPMN	5	S	0	F	5.1
8	SRFTPMAX	STPMX	5	S	0	F	5.1
9	SRFTPMIN	STPMN	5	S	0	F	5.1
10	PRECIP	PR	5	S	0	F	5.2
11	SNODPTH	SD	5	S	0	F	4.1
12	SNOMOIST	SM	5	S	0	F	4.1

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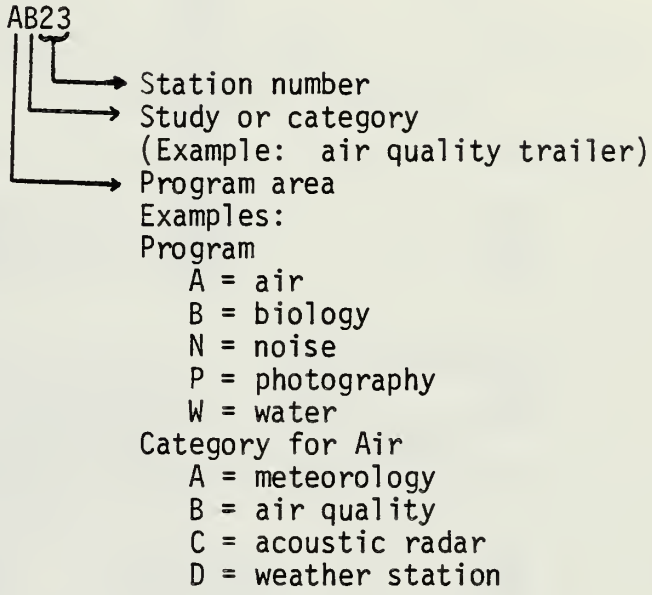
STATION
COMPUTER CODE

IV B STATION COMPUTER CODE

A four-digit computer station code has been designed for identifying environmental monitoring stations in RAMIS. It consists of two letters followed by two numbers:



The codes are presented in Table IV B-1 for the environmental program along with the current station designations. An attempt has been made throughout this report to refer to all stations in terms of their four-digit codes. A jacket map showing all environmental monitoring stations designated by four-digit codes can be found in Section IV C.

Table IV B-1

COMPUTER STATION CODES

I Air Quality & Meteorology

Sta. Designation			Computer Code
Met. Tower:	@ Sta	023	AA23
Trailers:	Sta	020	AB20
		021	AB21
		022	AB22
		023	AB23
		024	AB24
Acoustic Radar	Sta	020	AC20
		021	AC21
		023	AC23
MRI and Particulates	Sta	031	A031
		032	A032
		033	A033
		041	A041
		042	A042
		043	A043
		044	A044
		056	A056

II Biology

Program	General Location	Computer Code	*Analysis Code
Oeer Oays Use	Between Hunter Cr. & Jimmy Gulch	BA01	PJ-CH-C
		BA02	PJ-CH-C
		BA03	PJ-CH-C
		BA04	PJ-CH-C
		BA05	PJ-CH-C
		BA06	PJ-CH-C
		BA07	PJ-CH-C
		BA08	PJ-CH-C
		BA09	PJ-CH-C
	North Side, Piceance Creek	BA10	PJ -O
		BA11	PJ -O
		BA12	PJ -O
		BA13	PJ -C
		BA14	PJ -C
		BA15	PJ -C
	South Side, Piceance Creek	BA16	PJ -O
	On Tract bet. Cottonwood & Scandard	BA17	PJ-CH-C
		BA18	PJ-CH-C
		BA19	PJ -C
	On Tract bet. Cottonwood & Sorghum	BA20	PJ-CH-O
		BA21	PJ-CH-O
		BA22	PJ -O
	On Tract bet. Sorghum & W. Fork Stewart	BA23	PJ-CH-O
		BA24	PJ
		BA25	PJ-CH-C
	On Tract bet. W. & M. Fork Stewart	BA26	PJ -C
		BA27	PJ -C
	On Tract bet. Willow & Scandard North End	BA28	PJ-CH-C
	On Tract bet. Willow & Scandard S.E.	BA29	PJ-CH-C
	On Tract bet. Cottonwood & Sorghum North	BA30	PJ-CH-C
	On Tract bet. Cottonwood & Sorghum South	BA31	PJ-CH-C

*ANALYSIS COOES:

PJ-CH-C	-	Pinon Juniper, Chained, Control Station	(12)
PJ -C	-	Pinon Juniper, Control Station	(6)
PJ-CH-O	-	Pinon Juniper, Chained, Oevelopment Station	(3)
PJ -O	-	Pinon Juniper, Oevelopment Station	(6)

Table IV B-1 (Continued)

Biology Cont'd

Program	General Location	Computer Code
Deer Mortality	North Side of Piceance Creek	BD01
		BD02
		BD03
		BD04
		BD05
		BD06
	South Side of Piceance Creek	BD07
		BD08
		BD09
		BD10
Deer Age Class	General Area of Tract	BE01
Coyotte Abundance	8 Transects for Total of 30 miles	BF01
	15 mi seg. near Hunter (control)	BF02 thru BF08
	15 mi seg. on & South of Tract (development)	
Lagomorph Abundance	Identical Locations to deer use days	BA01 to BA31
Small Mammals	Piceance Creek (Development)	BG01
	On-Tract-west (Development)	BG02
	Piceance Creek (Control)	BG03
	On Tract-east (Control)	BG04
Avifauna		
Songbirds and Gamebirds	N.W. of Tract-near Jimmy PJ-CH-C	BH01
	On Tract-Scandard PJ -D	BH02
	On Tract-Cottonwood PJ-CH-D	BH03
	S. of Tract-bet. W&N Fork Stewart PJ -C	BH04
Raptors	The entire tract and surrounding study areas.	BI01
Aquatic Ecology		
Benthos	USGS 90306007 (Control)	WU07
	USGS 58 (Development)	WU58
	USGS 61 (Development)	WU61
Periphyton	Piceance Creek Upstream (Control)	WP01
		WP02
	Piceance Creek Downstream (Development)	WP03
Water Quality	USGS 09306061 (Development)	WU61
Vegetation		
Community Structure		
	Chained pinyon juniper (1978)(Dev)	BJ01
	Chained pinyon juniper (1978)(Cont)	BJ02
	Upland sagebrush (1980)(Cont)	BJ03
	Bottomland sagebrush (1980)(Cont)	BJ04
	Pinyon juniper woodland (1979)(Dev)	BJ05
	Pinyon juniper woodland (1979)(Cont)	BJ06
Herb Productivity and Utilization	Identical locations to community structure	BJ01 thru BJ06
	Plus	
	60 range cages in random locations	BK01 thru BK60
	20 cages on south facing PJ for baseline	BK61 thru BK80
	5 cages for fertilization assessment	BK81 thru BK85
Shrub Productivity and Utilization	Same stations as Deer Use Days Study	BA01 thru BA31
General Condition	By aircraft over entire Tract area	Not in computer

Biology (Cont'd)

Programs: Deer Distribution & Migration and Road Kills

Mile Marker	Location	Computer Code North of Piceance Creek	Computer Code South(Meadows) of Piceance Creek
41	White River City	BN41	BM41
40	Piceance Bridge	BN40	BM40
39	Lower Canyon	BN39	BM39
38	Piceance Canyon	BN38	BM38
37	Yellow Creek	BN37	BM37
36	Stinking Springs	BN36	BM36
35	Old Bridge	BN35	BM35
34	Little Hills Turnoff	BN34	BM34
33	Old Corrals & Buildings	BN33	BM33
32	Burk Ranch	BN32	BM32
31	2 Ranch	BN31	BM31
30		BN30	BM30
29		BN29	BM29
28	Bureau of Mines	BN28	BM28
27	Ryan Gulch	BN27	BM27
26	Pump Station	BN26	BM26
25		BN25	BM25
24	Rock School	BN24	BM24
23	AQ 021	BN23	BM23
22	Pat Johnson's Ranch	BN22	BM22
21	Hunter Creek	BN21	BM21
20	PL Gate	BN20	BM20
19	AQ 020	BN19	BM19
18	Sorghum, Cottonwood	BN18	BM18
17	Stewart Gulch Rd.	BN17	BM17
16	A Q Trailer 022	BN16	BM16
15	Oldland's Ranch	BN15	BM15
14	Oldland's Ranch	BN14	BM14
13	Pond and Cabin	BN13	BM13
12	Sprague Gulch	BN12	BM12
11	Cascade Gulch	BN11	BM11
10	13 Mile Gulch	BN10	BM10
9	14 Mile Gulch	BN09	BM09
8	Schutte Gulch	BN08	BM08
7	Robinson's Ranch	BN07	BM07
6		BN06	BM06
5	2 Old Cabins (35 MPH Curve)	BN05	BM05
4	McCarthy Gulch	BN04	BM04
3	Cow Creek	BN03	BM03
2	Mahogany Outcropping	BN02	BM02
1	Woodward Ranch	BN01	BM01
0	Rio Blanco Store	BN00	BM00

Table IV B-1 (Continued)

Biology (Cont'd)

Program	General Location	Computer Code
Micro Climate	MC Sta. 1	BC01
	2	BC02
	3	BC03
	4	BC04
	5	BC05
	6	BC06
	7	BC07
	8	BC08
	9	BC09
	13	BC13

III Noise

	Station Designation	Computer Code
Traffic Noise	Sta II	NA02
	IX	NA09
	XV	NB15

IV Photography

P1	PA01
P2	PA02
P3	PA03
P4	PA04
P5	PA05
P6	PA06
P7	PA07
P8	PA08
P9	PA09
P10	PA10
P11	PA11
P12	PA12
P13	PA13
P14	PA14
P15	PA15
P16	PA16
P17	PA17
P18	PA18
P19	PA19
P20	PA20
P21	PA21
P22	PA22
P23	PA23
P24	PA24
P25	PA25
P26	PA26
P27	PA27
P28	PA28
P29	PA29
P30	PA30
P31	PA31
P32	PA32
P33	PA33
P34	PA34
P35	PA35

Table IV B-1 (Continued)

V Water

	Station Designation	Computer Code
USGS Stream Gauging Station	09304800	WU48
	09306007	WU07
	36	WU36
	39	WU39
	42	WU42
	61	WU61
	50	WU50
	52	WU52
	58	WU58
	33	WU33
	25	WU25
	15	WU15
	28	WU28
	22	WU22
	09306200	WU00
	6222	WU62
	6255	WU55
Alluvial Wells	A-1	WA01
	A-2	WA02
	A-3	WA03
	A-4	WA04
	A-5	WA05
	A-5A	WA55
	A-6	WA06
	A-7	WA07
	A-8	WA08
	A-9	WA09
	A-10	WA10
	A-11	WA11
	A-12	WA12
	A-13	WA13
Springs and Seeps	CB S-1	WS01
	CB S-2	WS02
	CB S-3	WS03
	CB S-4	WS04
	CB S-6	WS06
	CB S-7	WS07
	CB S-8	WS08
	CB S-9	WS09
	CB S-10	WS10
	CB Seep-A	WS11

Table IV B-1 (Continued)

V Water - Cont'd

	Station Designation	Computer Code
Springs and Seeps	CER-1	WS21
	B-3	WS22
	H-3	WS23
	F-3	WS24
	Fig. 4-A	WS25
	W-4	WS26
	W-9	WS27
	CER-7	WS28
	S-9	WS29
	P3 & P3A	WS30
	CER-6	WS31
	W-2	WS32
	S-2	WS33
	W-3	WS34
	Fig. 4	WS35
Precipitation	CB-020	AB20
	CB-023	AB23
	LH	WR01
	M	WR02
	SG	WR03
	CG	WR04
	JQS	WR05
	EFPC	WR06
	EMFPC	WR07

V Water - Cont'd

Upper Aquifer Wells

Before Recompletions		After Recompletions	
Station	Code	Station	Code
CB-2	WX02		
CB-4	WX04		
SG-10A	WX10		
SG-1A	WX11		
SG-1-2	WX12		
SG-17-2	WX17		
SG-18A	WX18		
SG-19	WX19		
SG-20	WX20		
SG-21	WX21		
AT-1C-3	WX44		
SG-11-3	WX55		
SG-6-3	WX63		
SG-8-2	WX82		
SG-9-2	WX92		
32X-12	WX32		
33X-1	WX33		
41X-1	WX41		
TH75-5A	WX64		
TH75-13A	WX65		
TH75-18A	WX67		
TH75-9A	WX69		
CER RB-D-02	WX71		
TH75-15A	WX72		
UNION 8-1	WX73		
COLONY 12-596	WX74		

Lower Aquifer Wells

Before Recompletions		After Recompletions	
Station	Code	Station	Code
CB-1	WY01		
SG-10	WY09	SG-10R	WY10
SG-1-1	WY12		
SG-17-1	WY18	SG-17-1R	WY17
AT-1C-1	WY45		
AT-1C-2	WY46		
SG-11-1	WY51	SG-11-1R	WY52
SG-11-2	WY54		
SG-6-1	WY61		
SG-6-2	WY62		
SG-8	WY80	SG-8R	WY81
SG-9-1	WY91		
AT-1	WY44		
TH75-5B	WY64		
TH75-13B	WY65		
EQUITY-1	WY66		
TH75-18B	WY67		

V Water - Cont'd

Lower Aquifer Wells (Cont'd)

Before Recompletions		After Recompletions	
Station	Code	Station	Code
TH75-10B	WY68		
TH75-9B	WY69		
EQUITY-SULFER-1A	WY70		
CER RB-D-03	WY71		
TH75-15B	WY72		
TG71-3	WY75		
TG71-5	WY76		
GETTY 9-4D	WY77		
TG71-4	WY78		
EQUITY BS-13	WY79		

Composite Wells

Station	Code
GREENO 4-4	WV01
OLDLAND 3	WV02
GP-17X-BG	WV03
BUTE 25	WV04
LIBERTY BELL 12	WV05

Seepage Monitoring Wells

Station	Code
31X-12	WW12
41X-13-2	WW13

Ponds

Station	Code
POND A	WN01
POND B	WN02
POND C	WN03
POND A SPRINGS	WN11
POND B SPRINGS	WN12
POND C SPRINGS	WN13
POND A INLET	WN21
POND B INLET	WN22
POND C INLET	WN23
POND A-B CROSSOVER	WN31
POND B OUTLET	WN32
POND C OUTLET	WN33
BACKWASH POND	WN04
BACKWASH POND SPRINGS	WN14
BACKWASH POND INLET	WN24
BACKWASH POND OUTLET	WN34
POND AB DISCHARGE	WN40

V Water - Cont'd

Shafts

Station	Code
V/E SHAFT PROBE HOLES	WZ01
SERVICE SHAFT PROBE HOLES	WZ02
PRODUCTION SHAFT PROBE HOLES	WZ03
V/E SHAFT WATER RING	WZ11
SERVICE SHAFT WATER RING	WZ12
PRODUCTION SHAFT WATER RING	WZ13
V/E SHAFT SUMP	WZ21
SERVICE SHAFT SUMP	WZ22
PRODUCTION SHAFT SUMP	WZ23

IV STATION COORDINATES

Environmental monitoring station coordinates have been specified by latitude and longitude and by township and range during this report period. The above information plus ground level elevations (taken from section topology maps) for each station are presented in Table IV C-1. Previously reported Colorado Coordiante System coordinates have been deleted from this report because of inconsistencies with development plan maps. Corrected coordinates will be calculated and presented in future reports. In cases where stations represent biological transects several meters in length, the coordinates reported are those of a point on the map near the station label. A jacket map of the Tract area (Figure IV C-1) showing all monitoring stations on and near Tract C-b has also been prepared; stations are designated by their four-digit computer station codes.

Table IV C-1

ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE+	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
WW12	39° 48' 42" 108° 13' 27"	T3S R97W Sec 1 SE¼, SW¼, SE¼		6780'
WX02	39° 48' 54" 108° 12' 22"	T3S R96W Sec 6 SE¼, NW¼, SE¼		6730'
WX03	39° 48' 51" 108° 11' 27"	T3S R96W Sec 5 NW¼, SW¼, SE¼		6740'
WX04	39° 47' 11" 108° 11' 50"	T3S R96W Sec 17 SE¼, NW¼, SW¼		7040'
WX10	39° 47' 46" 108° 13' 06"	T3S R97W Sec 13 NE¼, NE¼, NE¼		6950'
WX12/WY12	39° 48' 48" 108° 14' 35"	T3S R97W Sec 2 NE¼, SW¼, SE¼		6440'
WX17/WY17	39° 46' 57" 108° 10' 50"	T3S R96W Sec 16 SW¼, SW¼, SW¼		7040'
WX19	39° 49' 31" 108° 11' 58"	T3S R96W Sec 5 NW¼, NW¼, NW¼		6370'
WX20	39° 49' 33" 108° 12' 24"	T2S R96W Sec 31 SE¼, SW¼, SE¼		6350'
WX21	39° 46' 57" 108° 13' 28"	T3S R97W Sec 13 SE¼, SW¼, SE¼		6870'
WX32	39° 48' 26" 108° 13' 34"	T3S R97W Sec 12 NW¼, SW¼, NE¼		6840'
WX33	39° 48' 59" 108° 13' 27"	T3S R97W Sec 1 SE¼, NW¼, SE¼		6720'
WX44/WY45 /WY46	39° 48' 03" 108° 12' 47"	T3S R96W Sec7 SW¼, NE¼, SW¼		6910'
WX55/WY52 /WY54	39° 47' 59" 108° 12' 05"	T3S R96W Sec 7 SE¼, SE¼, SE¼		6900'
WX63/WY61 /WY62 /WY81	39° 48' 13" 108° 12' 31"	T3S R96W Sec 7 NW¼, NW¼, SE¼		6870'
WX92/WY91	39° 47' 49" 108° 14' 18"	T3S R97W Sec 11 SE¼, SE¼, SE¼		6870'
WY01	39° 48' 51" 108° 14' 01"	T3S R97W Sec 1 NE¼, SW¼, SW¼		6780'
WY10	39° 47' 46" 108° 13' 05"	T3S R97W Sec 13 NE¼, NE¼, NE¼		6950'
WY81	39° 48' 12" 108° 10' 23"	T3S R96W Sec 9 NE¼, NE¼, SW¼		6540'
WZ01	39° 48' 59" 108° 13' 27"	T3S R96W Sec 1 SE¼, NW¼, SE¼		6720

*Plane Coordinate Projection Tables, Colorado, Special Publication No. 276, U.S. Government Printing Office.

+Multiiple station codes at the same location indicates samples taken at different depths.

Table IV C-1 (Continued)

ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
WS01	39° 49' 30" 108° 11' 01"	T3S R96W Sec 5 NE¼, NE¼, NE¼		6380'
WS02	39° 48' 04" 108° 10' 16"	T3S R96W Sec 9 SW¼, NW¼, SE¼		6540'
WS03	39° 49' 32" 108° 11' 08"	T3S R96W Sec 5 NW¼, NE¼, NE¼		6360'
WS04	39° 48' 03" 108° 10' 13"	T3S R96W Sec 9 NE¼, SW¼, SE¼		6550'
WS06	39° 50' 23" 108° 14' 38"	T2S R97W Sec 35 NE¼, NW¼, NE¼		6260'
WS07	39° 50' 18" 108° 14' 33"	T2S R97W Sec 35 SW¼, NE¼, NE¼		6280'
WS08	39° 48' 57" 108° 14' 47"	T3S R97W Sec 11 SE¼, NE¼, SE¼		6400'
WS09	39° 48' 04" 108° 14' 50"	T3S R97W Sec 14 NW¼, NE¼, SW¼		6550'
WS10	39° 47' 16" 108° 15' 01"	T3S R97W Sec 2 SE¼, NE¼, SW¼		6580'
WU07	39° 49' 31" 108° 10' 58"	T3S R96W Sec 5 NE¼, NE¼, NE¼		6400'
WU15	39° 47' 20" 108° 10' 23"	T3S R96W Sec 16 NE¼, NE¼, SW¼		6600'
WU22	39° 48' 45" 108° 11' 0"	T3S R96W Sec 5 SE¼, SE¼, SE¼		6460'
WU25	39° 46' 56" 108° 11' 21"	T3S R96W Sec 17 SE¼, SW¼, SE¼		6680
WU28	39° 48' 42" 108° 10' 59"	T3S R96W Sec 5 SE¼, SE¼, SE¼		6460'
WU33	39° 47' 14" 108° 12' 33"	T3S R96W Sec 18 SE¼, NE¼, SW¼		6860'
WU36	39° 49' 28" 108° 11' 54"	T3S R96W Sec 5 NE¼, NW¼, NW¼		6380'
WU39	39° 49' 34" 108° 12' 28"	T2S R96W Sec 31 SW¼, SW¼, SE¼		6380'
WU42	39° 50' 3" 108° 13' 12"	T2S R97W Sec 36 SE¼, SE¼, NE¼		6430'
WU50	39° 47' 42" 108° 13' 39"	T3S R97W Sec 13 NE¼, NE¼, NW¼		6660'
WU52	39° 48' 49" 108° 14' 33"	T3S R97W Sec 2 NE¼, SW¼, SE¼		6460'
WU58	39° 50' 12" 108° 14' 37"	T2S R97W Sec 35 NE¼, SW¼, NE¼		6280'
WU61	39° 51' 3" 108° 15' 31"	T2S R97W Sec 27 NE¼, SE¼, NE¼		6220'

*Plane Coordinate Projection Tables, Colorado, Special Publication No. 276, U. S. Government Printing Office.

Table IV C-1 (Continued)

ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
PA32	39° 47' 26" 108° 10' 18"	T3S R96W Sec 16 SW¼, SW¼, NE¼		6640'
PA33	39° 46' 58" 108° 13' 00"	T3S R96W Sec 18 SW¼, SW¼, SW¼		7060'
PA34	39° 46' 53" 108° 12' 03"	T3S R96W Sec 19 NE¼, NE¼, NE¼		7120'
PA35	39° 45' 19" 108° 13' 05"	T3S R97W Sec 25 NE¼, SE¼, SE¼		7400'
V. WATER				
WA01	39° 50' 32" 108° 13' 53"	T2S R97W Sec 25 SW¼, SE¼, SW¼		6300'
WA02	39° 50' 10" 108° 14' 36"	T2S R97W Sec 35 NE¼, SW¼, NE¼		6280'
WA03	39° 48' 48" 108° 14' 31"	T3S R97W Sec 2 NE¼, SW¼, SE¼		6460'
WA04	39° 47' 26" 108° 13' 34"	T3S R97W Sec 13 SW¼, SW¼, NE¼		6700'
WA05	39° 50' 4" 108° 13' 14"	T2S R97W Sec 36 SW¼, SE¼, NE¼		6330'
WA06	39° 49' 36" 108° 12' 25"	T2S R96W Sec 31 SE¼, SW¼, SE¼		6360'
WA07	39° 49' 32" 108° 11' 57"	T3S R96W Sec 5 NW¼, NW¼, NW¼		6370'
WA08	39° 49' 11" 108° 11' 8"	T3S R96W Sec 5 SW¼, SE¼, NE¼		6400'
WA09	39° 48' 10" 108° 10' 22"	T3S R96W Sec 9 NE¼, NE¼, SW¼		6420'
WA10	39° 47' 24" 108° 10' 23"	T3S R96W Sec 16 SE¼, SE¼, NW¼		6580'
WA11	39° 48' 18" 108° 11' 5"	T3S R96W Sec 8 SW¼, SE¼, NE¼		6550'
WA12	39° 46' 57" 108° 11' 24"	T3S R96W Sec 17 SW¼, SW¼, SE¼		6700'
WA13	39° 47' 13" 108° 12' 34"	T3S R96W Sec 18 SW¼, NW¼, SE¼		6840'
WP01	39° 49' 35" 108° 11' 01"	T2S R96W Sec 32 SE¼, SE¼, SE¼		6380
WP02	39° 49' 40" 108° 12' 0"	T2S R96W Sec 32 NW¼, SW¼, SW¼		6300'
WP03	39° 51' 03" 108° 15' 27"	T2S R97W Sec 26 NW¼, SW¼, NW¼		6220'

*Plane Coordinate Projection Tables, Colorado, Special Publication No 276, U. S. Government Printing Office.

Table IV C-1 (Continued)

ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
PA12	39° 48' 47" 108° 11' 27"	T3S R96W Sec 5 SW¼, SW¼, SE¼		6740'
PA13	39° 49' 44" 108° 11' 16"	T2S R96W Sec 32 SE¼, SW¼, SE¼		6500'
PA14	39° 48' 22" 108° 14' 28"	T3S R97W Sec 11 NE¼, SW¼, NE¼		6700'
PA15	39° 48' 20" 108° 14' 01"	T3S R97W Sec 12 NE¼, SW¼, NW¼		6670'
PA16	39° 47' 56" 108° 13' 47"	T3S R97W Sec 12 NE¼, SE¼, SW¼		6730'
PA17	39° 48' 36" 108° 13' 18"	T3S R97W Sec 12 NW¼, NE¼, NE¼		6760'
PA18	39° 48' 31" 108° 13' 09"	T3S R97W Sec 12 SW¼, NE¼, NE¼		6820'
PA19	39° 47' 51" 108° 12' 56"	T3S R96W Sec 7 SW¼, SW¼, SW¼		6870'
PA20	39° 48' 05" 108° 12' 46"	T3S R96W Sec 7 SW¼, NE¼, SW¼		6890'
PA21	39° 47' 46" 108° 12' 03"	T3S R96W Sec 18 NE¼, NE¼, NE¼		6920'
PA22	39° 48' 16" 108° 11' 32"	T3S R96W Sec 8 SE¼, SE¼, NW¼		6860'
PA23	39° 48' 39" 108° 10' 56"	T3S R96W Sec 8 NE¼, NE¼, NE¼		6540'
PA24	39° 47' 58" 108° 10' 42"	T3S R96W Sec 9 NE¼, SW¼, SW¼		6880'
PA25	39° 48' 10" 108° 10' 24"	T3S R96W Sec 9 NE¼, NE¼, SW¼		6520'
PA26	39° 47' 26" 108° 13' 37"	T3S R97W Sec 13 SE¼, SE¼, NW¼		6770'
PA27	39° 47' 23" 108° 12' 57"	T3S R96W Sec 18 SW¼, SW¼, NW¼		6980'
PA28	39° 47' 03" 108° 12' 57"	T3S R96W Sec 18 NW¼, SW¼, SW¼		7010'
PA29	39° 46' 39" 108° 11' 19"	T3S R96W Sec 17 SW¼, SW¼, SE¼		6700'
PA30	39° 46' 57" 108° 10' 47"	T3S R96W Sec 16 SW¼, SW¼, SW¼		7120'
PA31	39° 47' 45" 108° 10' 43"	T3S R96W Sec 16 NE¼, NW¼, NW¼		6920'

* Plane Coordinate Projection Tables, Colorado, Special Publication No. 276, U. S. Government Printing Office.

Table IV C-1 (Continued)

ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
BJ03	39° 46' 58" 108° 12' 01"	T3S R96W Sec 17 SW¼, SW¼, SW¼		7100'
BJ04	39° 47' 24" 108° 13' 27"	T3S R97W Sec 13 SE¼, SW¼, NE¼		6700'
BJ05	39° 48' 08" 108° 11' 53"	T3S R96W Sec 8 SE¼, NW¼, SW¼		6840'
BJ06	39° 47' 54" 108° 10' 41"	T3S R96W Sec 9 SE¼, SW¼, SW¼		6880'
III. NOISE				
NA02	39° 50' 42" 108° 14' 19"	T2S R97W Sec 25 SW¼, NW¼, SW¼		6520'
NA09	39° 49' 08" 108° 14' 16"	T3S R97W Sec 2 SE¼, SE¼, NE¼		6660'
NB15	39° 49' 04" 108° 13' 26"	T3S R97W Sec 1 NE¼, NW¼, SE¼		6720'
IV. PHOTOGRAPHY				
PA01	39° 51' 50" 108° 11' 21"	T2S R96W Sec 20 SW¼, SW¼, NE¼		7420'
PA02	39° 50' 43" 108° 14' 04"	T2S R97W Sec 25 SE¼, NW¼, SW¼		6560'
PA03	39° 50' 23" 108° 14' 06"	T2S R97W Sec 36 NE¼, NW¼, NW¼		6300'
PA04	39° 49' 58" 108° 13' 10"	T2S R97W Sec 36 NE¼, NE¼, SE¼		6410'
PA05	39° 49' 03" 108° 14' 40"	T3S R97W Sec 2 NW¼, NW¼, SE¼		6410'
PA06	39° 48' 55" 108° 14' 04"	T3S R97W Sec 1 SW¼, NW¼, SW¼		6770'
PA07	39° 48' 55" 108° 13' 56"	T3S R97W Sec 1 SE¼, NW¼, SW¼		6770'
PA08	39° 49' 19" 108° 13' 48"	T3S R97W Sec 1 NW¼, SE¼, NW¼		6760'
PA09	39° 48' 54" 108° 12' 19"	T3S R96W Sec 6 NE¼, SW¼, SE¼		6750'
PA10	39° 49' 30" 108° 11' 49"	T3S R96W Sec 5 NE¼, NW¼, NW¼		6430'
PA11	39° 48' 41" 108° 11' 46"	T3S R96W Sec 5 SW¼, SE¼, SW¼		6700'

* Plane Coordinate Projection Tables, Colorado, Special Publication No. 276, U. S. Government Printing Office.

Table IV C-1 (Continued)

ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
BD10	39° 49' 18" 108° 11' 49"	T3S R96W Sec 5 NE¼, SW¼, NW¼		6420'
	Coordinates Picked Near Transect Map Code Label			
BF01	39° 47' 54" 108° 16' 34"	T3S R97W Sec 9 NE¼, SE¼, SE¼		6900'
BF02	39° 48' 02" 108° 14' 23"	T3S R97W Sec 11 SW¼, NE¼, SE¼		6800'
BF03	39° 46' 41" 108° 13' 30"	T3S R97W Sec 24 NW¼, SW¼, NE¼		6860'
BF04	39° 46' 25" 108° 13' 04"	T3S R97W Sec 24 NE¼, NE¼, SE¼		7190'
BF05	39° 47' 30" 108° 12' 07"	T3S R96W Sec 18 NE¼, SE¼, NE¼		6980'
BF06	39° 47' 44" 108° 11' 42"	T3S R96W Sec 17 NW¼, NE¼, NW¼		6940'
BF07	39° 46' 09" 108° 11' 49"	T3S R96W Sec 20 SW¼, SE¼, SW¼		6820'
BF08	39° 47' 35" 108° 10' 46"	T3S R96W Sec 16 NE¼, SW¼, NW¼		6950'
BG01	39° 50' 17" 108° 14' 0"	T2S R97W Sec 36 SW¼, NE¼, NW¼		6360'
BG02	39° 47' 48" 108° 13' 21"	T3S R97W Sec 13 NE¼, NW¼, NE¼		6940'
BG03	39° 49' 39" 108° 12' 08"	T2S R96W Sec 31 SE¼, SE¼, SE¼		6300'
BG04	39° 47' 40" 108° 10' 54"	T3S R96W Sec 16 SW¼, NW¼, NW¼		6860'
BH01	39° 48' 45" 108° 16' 0"	T3S R97W Sec 5 SE¼, SE¼, SW¼		6660'
BH02	39° 47' 49" 108° 13' 35"	T3S R97W Sec 12 SW¼, SW¼, SE¼		6780'
BH03	39° 48' 6" 108° 12' 58"	T3S R96W Sec 7 SW¼, NW¼, SW¼		6840'
BH04	39° 46' 43" 108° 10' 56"	T3S R96W Sec 20 NE¼, SE¼, NE¼		7120'
BJ01	39° 47' 57" 108° 11' 57"	T3S R96W Sec 8 NW¼, SW¼, SW¼		6860'
BJ02	39° 47' 45" 108° 14' 21"	T3S R97W Sec 14 NW¼, NE¼, NE¼		6870'

* Plane Coordinate Projection Tables, Colorado, Special Publication No. 276, U. S. Government Printing Office.

Table IV C-1 (Continued)

ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
BA31	39° 48' 23" 108° 12' 39"	T3S R96W Sec 7 NE¼, SE¼, NW¼		6820'
BC01	39° 47' 57" 108° 11' 57"	T3S R97W Sec 8 NW¼, SW¼, SW¼		6860'
BC02	39° 47' 49" 108° 14' 21"	T3S R97W Sec 11 SW¼, SE¼, SE¼		6860'
BC03	39° 46' 56" 108° 11' 58"	T3S R96W Sec 17 SW¼, SW¼, SW¼		7100'
BC04	39° 47' 28" 108° 13' 31"	T3S R97W Sec 13 NW¼, SW¼, NE¼		6700'
BC05	39° 48' 08" 108° 11' 53"	T3S R96W Sec 8 SE¼, NW¼, SW¼		6840'
BC06	39° 47' 54" 108° 10' 43"	T3S R96W Sec 9 SE¼, SW¼, SW¼		6900'
BC07	39° 47' 45" 108° 13' 15"	T3S R97W Sec 13 NW¼, NE¼, NE¼		6940'
BC08	39° 50' 38" 108° 14' 20"	T2S R97W Sec 25 NW¼, SW¼, SW¼		6350'
BC09	39° 49' 30" 108° 11' 52"	T3S R96W Sec 5 NE¼, NW¼, NW¼		6400'
BC13	39° 47' 19" 108° 11' 19"	T3S R96W Sec 17 NE¼, NW¼, SE¼		6700'
BD01	39° 50' 57" 108° 14' 46"	T2S R97W Sec 26 SE¼, SE¼, NE¼		6380'
BD02	39° 50' 47" 108° 13' 55"	T2S R97W Sec 25 NW¼, NE¼, SW¼		6370'
BD03	39° 50' 34" 108° 12' 57"	T2S R96W Sec 30 SW¼, SW¼, SW¼		6420'
BD04	39° 50' 04" 108° 12' 17"	T2S R96W Sec 31 SW¼, SE¼, NE¼		6420'
BD05	39° 50' 08" 108° 11' 41"	T2S R96W Sec 32 NW¼, SE¼, NW¼		6420'
BD06	39° 49' 45" 108° 10' 36"	T2S R96W Sec 33 NW¼, SE¼, SW¼		6500'
BD07	39° 49' 52" 108° 13' 16"	T2S R97W Sec 36 SW¼, NE¼, SE¼		6380'
BD08	39° 49' 45" 108° 12' 44"	T2S R96W Sec 31 NW¼, SE¼, SW¼		6360'
BD09	39° 49' 25" 108° 12' 28"	T3S R96W Sec 6 SW¼, NW¼, NE¼		6410'

* Plane Coordinate Projection Tables, Colorado, Special Publication No. 276, U. S. Government Printing Office.

Table IV C-1 (Continued)

ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
BA12	39° 50' 31" 108° 13' 7"	T2S R97W Sec 25 SE¼, SE¼, SE¼		6600'
BA13	39° 49' 54" 108° 12' 4"	T2S R96W Sec 31 SE¼, NE¼, SE¼		6600'
BA14	39° 49' 51" 108° 10' 55"	T2S R96W Sec 33 SW¼, NW¼, SW¼		6700'
BA15	39° 49' 44" 108° 10' 32"	T2S R96W Sec 33 NW¼, SE¼, SW¼		6600'
BA16	39° 49' 54" 108° 14' 10"	T2S R97W Sec 36 NW¼, NW¼, SW¼		6500'
BA17	39° 48' 29" 108° 14' 37"	T3S R97W Sec 11 SW¼, NW¼, NE¼		6680'
BA18	39° 47' 47" 108° 14' 17"	T3S R97W Sec 14 NW¼, NE¼, NE¼		6820'
BA19	39° 47' 54" 108° 14' 2"	T3S R97W Sec 12 NE¼, SW¼, SW¼		6680'
BA20	39° 48' 16" 108° 12' 38"	T3S R96W Sec 7 SE¼, SE¼, NW¼		6860'
BA21	39° 47' 57" 108° 12' 33"	T3S R96W Sec 7 NE¼, SE¼, SW¼		6820'
BA22	39° 47' 9" 108° 12' 35"	T3S R96W Sec 18 SE¼, NE¼, SW¼		6860'
BA23	39° 48' 0" 108° 12' 6"	T3S R96W Sec 7 NE¼, SE¼, SE¼		6840'
BA24	39° 48' 52" 108° 11' 49"	T3S R96W Sec 5 NE¼, SW¼, SW¼		6640'
BA25	39° 47' 15" 108° 11' 46"	T3S, R96W Sec 17 NW¼, NE¼, SW¼		7000'
BA26	39° 48' 9" 108° 10' 51"	T3S R96W Sec 9 NW¼, NW¼, SW¼		6840'
BA27	39° 47' 5" 108° 10' 50"	T3S R96W Sec 16 NW¼, SW¼, SW¼		7020'
BA28	39° 48' 29" 108° 14' 28"	T3S R97W Sec 11 SE¼, NW¼, NE¼		6680'
BA29a	39° 47' 43" 108° 14' 14"	T3S R97W Sec 14 NE¼, NE¼, NE¼		6860'
BA29b	39° 47' 38" 108° 14' 21"	T3S R97W Sec 14 SW¼, NE¼, NE¼		6900'
BA30	39° 48' 49" 108° 12' 34"	T3S R96W Sec 6 NE¼, SE¼, SW¼		6720'

* Plane Coordinate Projection Tables, Colorado, Special Publication No. 276, U. S. Government Printing Office.

Table IV C-1 (Continued)

ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
I. AIR QUALITY AND METEOROLOGY				
AA23	39° 47' 43" 108° 12' 58"	T3S R96W Sec 18 NW¼, NW¼, NW¼		6950'
AB20	39° 50' 10" 108° 13' 08"	T2S R97W Sec 36 NE¼, SE¼, NE¼		6280'
AB23	39° 47' 43" 108° 12' 54"	T3S R96W Sec 18 NE¼, NW¼, NW¼		6950'
AB24	39° 48' 49" 108° 12' 20"	T3S R96W Sec 6 NE¼, SW¼, SE¼		6750'
AC20	39° 50' 08" 108° 13' 06"	T2S R97W Sec 36 NE¼, SE¼, NE¼		6310'
AD42	39° 48' 58" 108° 13' 08"	T3S R97W Sec 1 SE¼, NE¼, SE¼		6720'
AD56	39° 49' 31" 108° 12' 21"	T3S R96W Sec 6 NE¼, NW¼, NE¼		6380'
II. BIOLOGY				
BA01	39° 50' 17" 108° 16' 10"	T2S R97W Sec 34 SW¼, NE¼, NW¼		6480'
BA02	39° 50' 0" 108° 16' 16"	T2S R97W Sec 34 SE¼, SW¼, NW¼		6500'
BA03	39° 49' 31" 108° 16' 2"	T3S R97W Sec 3 NE¼, NE¼, NW¼		6640'
BA04	39° 49' 4" 108° 15' 44"	T3S R97W Sec 3 NE¼, NW¼, SE¼		6600'
BA05	39° 48' 41" 108° 16' 9"	T3S R97W Sec 3 SW¼, SE¼, SW¼		6720'
BA06	39° 48' 18" 108° 16' 16"	T3S R97W Sec 10 SE¼, SW¼, NW¼		6780'
BA07	39° 47' 54" 108° 16' 17"	T3S R97W Sec 10 NW¼, SW¼, SW¼		6860'
BA08	39° 47' 32" 108° 16' 37"	T3S R97W Sec 16 NE¼, SE¼, NE¼		6860'
BA09	39° 47' 9" 108° 16' 48"	T3S R97W Sec 16 SE¼, NW¼, SE¼		6940'
BA10	39° 50' 52" 108° 14' 16"	T2S R97W Sec 25 SW¼, SW¼, NW¼		6600'
BA11	39° 50' 43" 108° 13' 43"	T2S R97W Sec 25 SE¼, NE¼, SW¼		6580'

* Plane Coordinate Projection Tables, Colorado, Special Publication No. 276, U. S. Government Printing Office.

R 97 W

R 96 W

T 2 S

T 3 S

FIG IV C-1
DEVELOPMENT
MONITORING
ACTIVITIES

REVISION 1
MAR 8, 1979
REVISION 2
JUL 1, 1979


6800
6700