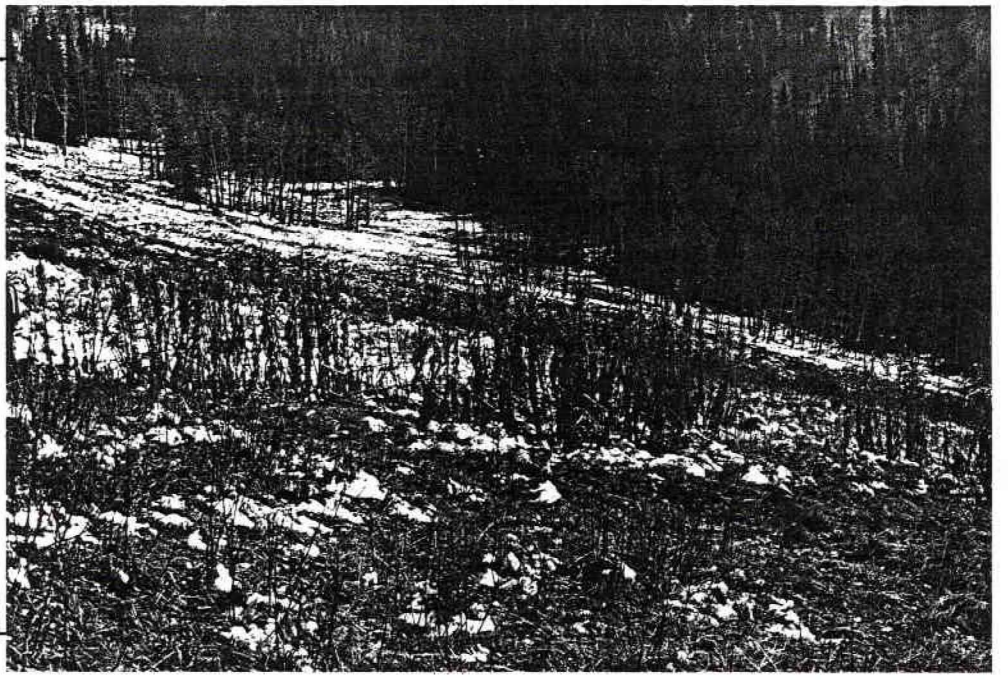
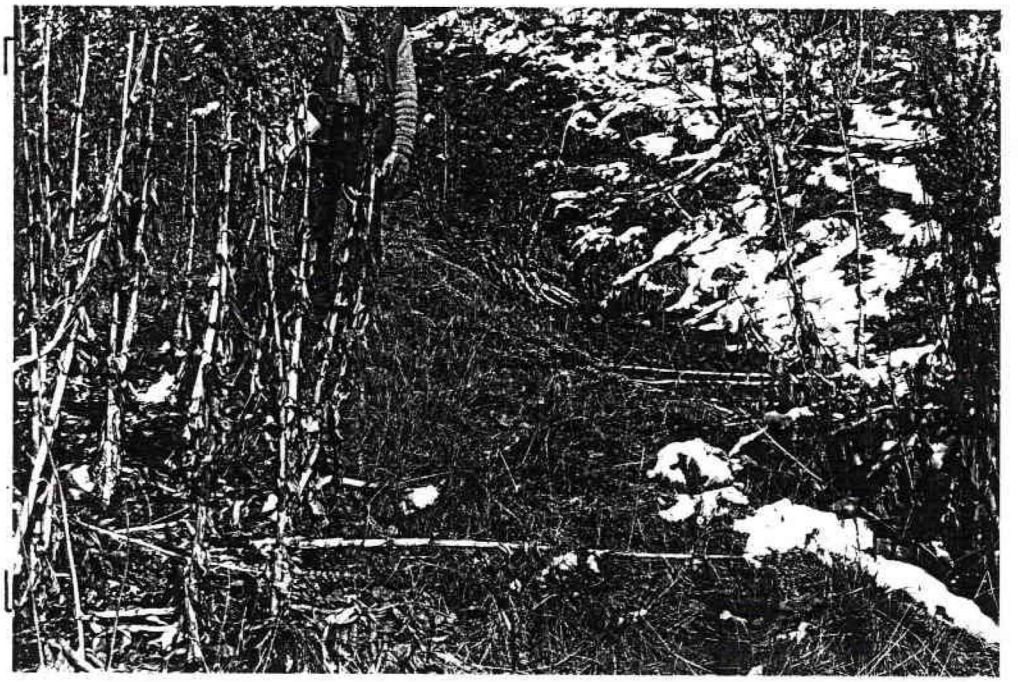
Photo Log

Area Photo



Site Photo



Wildlife Information

Species Observed	Species Sign Observed
Mammals	
	vole runways in grass
Birds	
Reptiles and Amphibians	

Habitat Considerations

No significant wetland vegetation

Comments: Open forb/grass meadow on sagebrush/rabbitbrush hillside, also small open stands of aspen

CEDAR CREEK ASSOCIATES

SEEP AND SPRING INVENTORY
VALLEY CAMP OF UTAH, INC.

General Information

Seep, Spring Identification: 25-11 Date: 10/16/84 Time: 4:07 pm

Observers: Phelan, Viert Elevation: 9,240

Legal Description: NW 1/4, NE 1/4, Sec. 25, T 13S, R 6 E

Dimensions: (30' X 60') + (10' X 40') Acreage: 0.06

Slope (Est.): 40% Aspect: WSW

USFWS Classification: Non-applicable

Vegetation Information

Species	Vigor	% Cover (Est.)	Importance
Trees			
None			
Shrubs			
Sambucus sp.	N/A	<1%	N/A
Herbaceous			
Veratrum sp., Rudbeckia laciniata, Stipa sp. Poa sp., Agropyron sp., misc annual forbs	N/A	80%	N/A

Adjacent Communities Aspen, big sagebrush/rabbitbrush

Comments: Photo Nos. & orientation: Site 1-30, 75° ; Site & Adj 1-31, 210°

Hydrology Information

Source of water: Blackhawk Formation

Quantity of water (gal/min): 1 gpm

Comments:

Photo Log

Area Photo

Site Photo

Wildlife Information

	Species Observed	Species Sign Observed
Mammals		elk pellets & tracks
Birds		
Reptiles and Amphibians		

Habitat Considerations

No significant wetland vegetation

Comments: open meadow on south facing aspen hillside, good elk habitat, elk tracks & pellets common, 0-1 in. snow cover

CEDAR CREEK ASSOCIATES

SEEP AND SPRING INVENTORY
VALLEY CAMP OF UTAH, INC.

General Information

Seep, Spring Identification: 24-1 Date: 10/16/84 Time: 3:41 pm

Observers: Phelan, Viert Elevation: 9,160'

Legal Description: NE 1/4, SE 1/4, Sec. 24, T 13S, R 6 E

Dimensions: 30' X 50' Acreage: 0.03

Slope (Est.): 20% Aspect: ESE

USFWS Classification: Non-applicable

Vegetation Information

Species	Vigor	% Cover (Est.)	Importance
Trees			
None			
Shrubs			
Sambucus sp.	N/A	1%	N/A
Herbaceous			
Veratrum sp., *Festuca* sp., *Poa pratensis*, *Wyethia* sp.	N/A	? (snow cover)	N/A

Adjacent Communities Aspen

Comments: Photo Nos. & orientation: Site 1-28, 350°; Adj. 1-29, 40°

Hydrology Information

Source of water: Blackhawk Formation

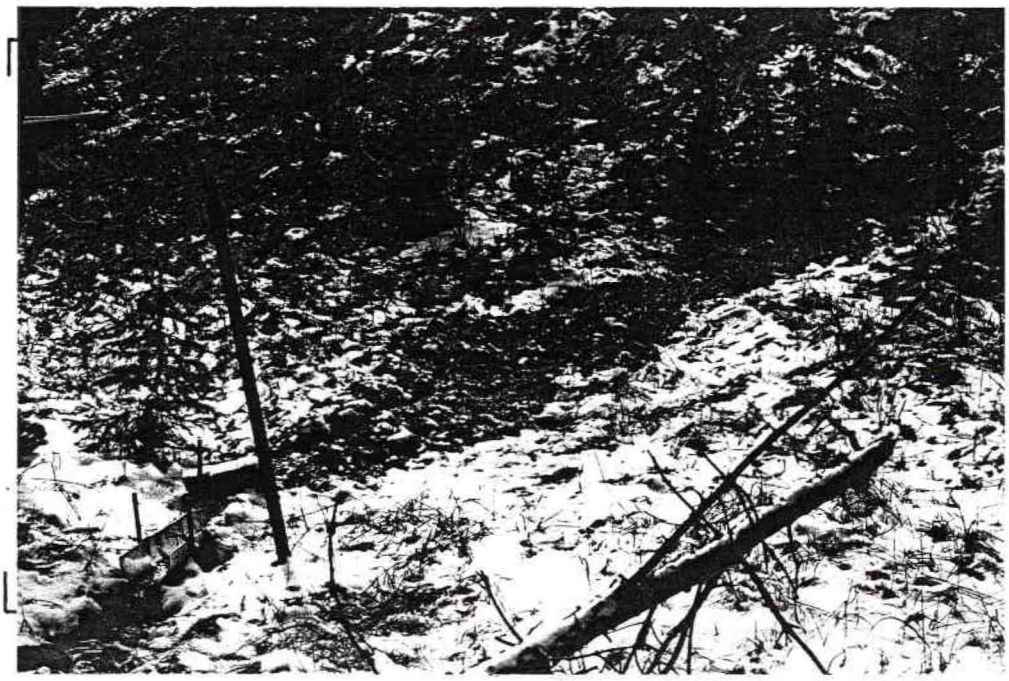
Quantity of water (gal/min): 1 gpm

Comments:

Photo Log

Area Photo

Site Photo



Wildlife Information

	Species Observed	Species Sign Observed
Mammals		
Birds		
Reptiles and Amphibians		

Habitat Considerations

No significant wetland vegetation

Comments: meadow adjacent to South Fork drainage, 0-1 in. snow

CEDAR CREEK ASSOCIATES

SEEP AND SPRING INVENTORY
VALLEY CAMP OF UTAH, INC.

General Information

Seep, Spring Identification: 24-12 Date: 10/16/84 Time: 1:53 pm

Observers: Phelan, Viert Elevation: 8,760'

Legal Description: SE 1/4, SW 1/4, Sec. 24, T 13S, R 6 E

Dimensions: 5' X 20' Acreage: < 0.01

Slope (Est.): 50% Aspect: ENE

USFWS Classification: Non-applicable

Vegetation Information

Species	Vigor	% Cover (Est.)	Importance
Trees			
None			
Shrubs			
None			
Herbaceous			
Poa pratensis, moss	N/A	? (snow cover)	N/A

Adjacent Communities Spruce/fir-Aspen mix

Comments: Photo Nos. and orientation: Site 1-26, 210°; Adj. 1-27, 260°

Hydrology Information

Source of water: Blackhawk Formation

Quantity of water (gal/min): 1 gpm

Comments:

Photo Log

Area Photo

Site Photo

Wildlife Information

	Species Observed	Species Sign Observed
Mammals		vole runways in grass
Birds		
Reptiles and Amphibians		

Habitat Considerations

No significant wetland vegetation

Comments: open meadow bordered by spruce fir & aspen, within 20 yards of South Fork drainage, 0-2 in. snow cover

CEDAR CREEK ASSOCIATES

SEEP AND SPRING INVENTORY
VALLEY CAMP OF UTAH, INC.

General Information

Seep, Spring Identification: 24-11 Date: 10/16/84 Time: 1:46 pm

Observers: Phelan, Viert Elevation: 8,800'

Legal Description: SE 1/4, SW 1/4, Sec. 24, T 13S, R 6 E

Dimensions: 10' X 30' Acreage: 0.01

Slope (Est.): 50% Aspect: ENE

USFWS Classification: Non-applicable

Vegetation Information

Species	Vigor	% Cover (Est.)	Importance
Trees			
Shrubs			
Sambucus sp.	N/A	< 1%	N/A
Herbaceous			
Agropyron spicatum, *Carex* spp. *Rudbeckia laciniata*	N/A	? (snow cover)	N/A

Adjacent Communities Spruce/fir-Aspen mix

Comments: Photo Nos. & orientation: Site 1-24, 350°; Adj. 1-25, 290°

Hydrology Information

Source of water: Blackhawk Formation

Quantity of water (gal/min): < 1 gpm

Comments:

Photo Log

Area Photo

Site Photo

Wildlife Information

Species Observed	Species Sign Observed

Mammals

Birds

Reptiles and Amphibians

Habitat Considerations

No significant wetland vegetation

Comments: spring area covered partially by downed timber; within 25 yards of South Fork drainage, 3-4 in. snow cover

CEDAR CREEK ASSOCIATES

SEEP AND SPRING INVENTORY
VALLEY CAMP OF UTAH, INC.

General Information

Seep, Spring Identification: 24-10 Date: 10/16/84 Time: 1:34 pm

Observers: Phelan/Viert Elevation: 8840'

Legal Description: SE 1/4, SW 1/4, Sec. 24, T 13S, R 6 E

Dimensions: 10' X 10' Acreage: < 0.01

Slope (Est.): 35% Aspect: NE

USFWS Classification: Non-applicable

Vegetation Information

Species	Vigor	% Cover (Est.)	Importance
Trees			
None			
Shrubs			
None			
Herbaceous			
mixed perennial grasses & annual forbs	N/A	? (snow cover)	N/A

Adjacent Communities Spruce/fir-Aspen mix

Comments: Photo orientation & Nos.: Site 1-22, 130° ; Adj. 1-23, 20°

Hydrology Information

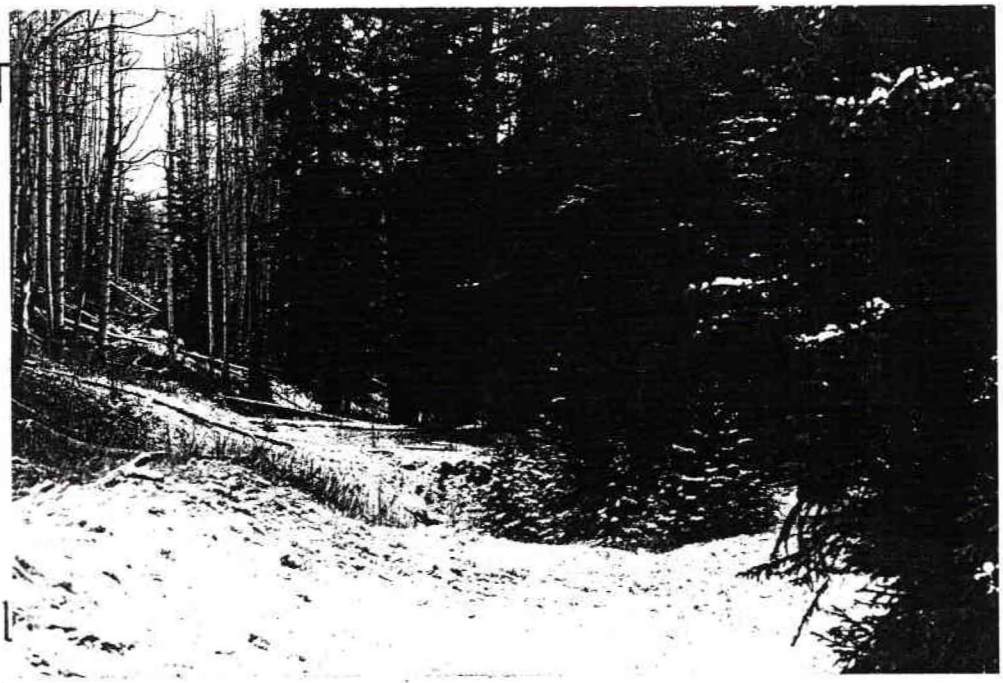
Source of water: Blackhawk Formation

Quantity of water (gal/min): 2 gpm

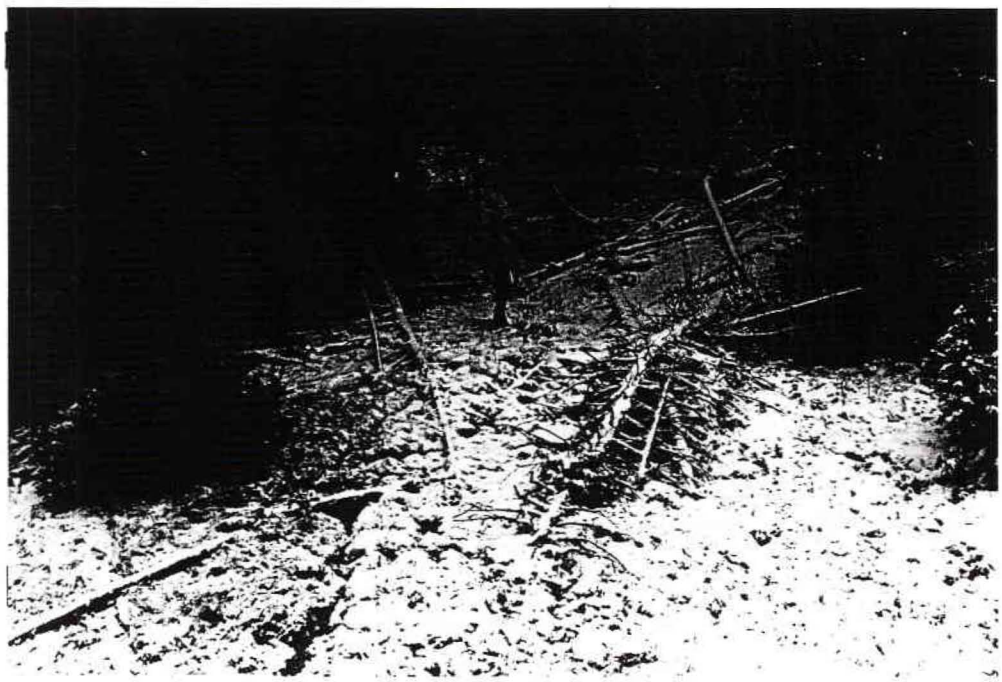
Comments:

Photo Log

Area Photo



Site Photo



Wildlife Information

	Species Observed	Species Sign Observed
Mammals		
Birds		
Reptiles and Amphibians		

Habitat Considerations

No significant wetland vegetation

Comments: 3-4 in. snow cover

CEDAR CREEK ASSOCIATES

SEEP AND SPRING INVENTORY
VALLEY CAMP OF UTAH, INC.

General Information

Seep, Spring Identification: 25-7 Date: 10/16/84 Time: 1:20 pm

Observers: Phelan, Viert Elevation: 8,960'

Legal Description: NE 1/4, NW 1/4, Sec. 25, T 13S, R 6 E

Dimensions: 20' X 50' Acreage: 0.02

Slope (Est.): 45% Aspect: NW

USFWS Classification: Non-applicable

Vegetation Information

Species	Vigor	% Cover (Est.)	Importance
Trees			
None			
Shrubs			
Ribes sp.	N/A	<1%	N/A
Herbaceous			
Misc. perennial grasses & annual forbs	N/A	? (snow cover)	N/A

Adjacent Communities Spruce/fir forest

Comments: Photo Nos. & orientation: Site 1-20, 125°; Adj. 1-21, 25°

Hydrology Information

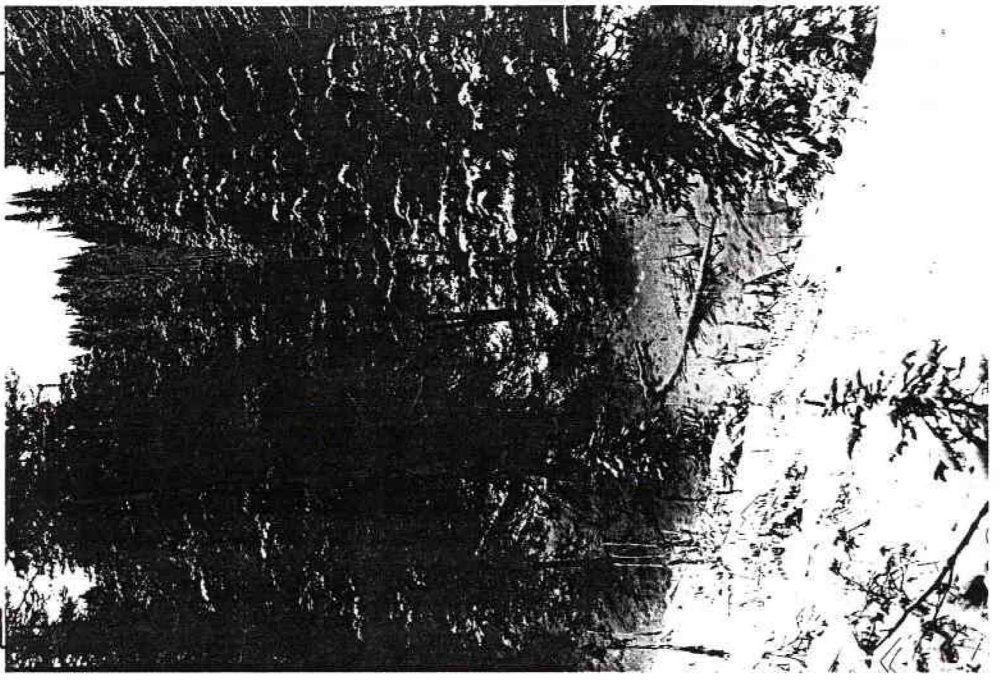
Source of water: Blackhawk Formation

Quantity of water (gal/min): 4 gpm

Comments:

Photo Log

Area Photo



Site Photo

Wildlife Information

Species Observed	Species Sign Observed

Mammals

Birds

Mt. chickadee

Reptiles and Amphibians

Habitat Considerations

No significant wetland vegetation

Comments: spring area crossed by down timber, 3-4 inches snow cover

CEDAR CREEK ASSOCIATES

SEEP AND SPRING INVENTORY
VALLEY CAMP OF UTAH, INC.

General Information

Seep, Spring Identification: 25-6 Date: 10/16/84 Time: 12:49 pm

Observers: Phelan, Viert Elevation: 9,100'

Legal Description: SE 1/4, NW 1/4, Sec. 25, T 13S, R 6 E

Dimensions: 20' X 50' Acreage: 0.02

Slope (Est.): 30% Aspect: W

USFWS Classification: Non-applicable

Vegetation Information

Species	Vigor	% Cover (Est.)	Importance
Trees			
10 2-3 ft. *Pseudotsuga menziesii*	good	< 1%	N/A
Shrubs			
None			
Herbaceous			
mostly grass - *Carex* sp. & *Koeleria* sp.	N/A	? (snow cover)	N/A

Adjacent Communities spruce/fir forest

Comments: Photo Nos. & orientation: Site 1-18, 130°; Adj. 1-19, 220°

Hydrology Information

Source of water: Blackhawk Formation

Quantity of water (gal/min): 6 gpm

Comments:

Photo Log

Area Photo

Site Photo

Wildlife Information

	Species Observed	Species Sign Observed
Mammals		
Birds		
Reptiles and Amphibians		

Habitat Considerations

No significant wetland vegetation

Comments: small clearing in spruce fir community
2-4 in. snow

CEDAR CREEK ASSOCIATES

SEEP AND SPRING INVENTORY
VALLEY CAMP OF UTAH, INC.

General Information

Seep, Spring Identification: 25-5 Date: 10/16/84 Time: 12:05 pm

Observers: Phelan, Viert Elevation: 9,160'

Legal Description: SE 1/4, NW 1/4, Sec. 25, T 13S, R 6 E

Dimensions: 25' dia + (80' X 100') Acreage: 0.20

Slope (Est.): 25% Aspect: W-NW

USFWS Classification: Non-applicable

Vegetation Information

Species	Vigor	% Cover (Est.)	Importance
Trees			
None			
Shrubs			
1) None			
2) Sambucus sp., Ribes sp.	N/A	15%	N/A
Herbaceous			
1) Veratrum sp., Rudbeckia laciniata, Carex spp.	N/A	? (snow cover)	N/A
2) Festuca sp., Agropyron sp., Rudbeckia lacinata, Stipa sp., Carex spp.	N/A	? (snow cover)	N/A

Adjacent Communities spruce/fir forest

Comments: Photo Nos. and orientation: Site 1-15, 175°; adj. 1-16 295° (2nd spring on right hand side of this photo), very sparse vegetation

Hydrology Information

Source of water: Blackhawk Formation

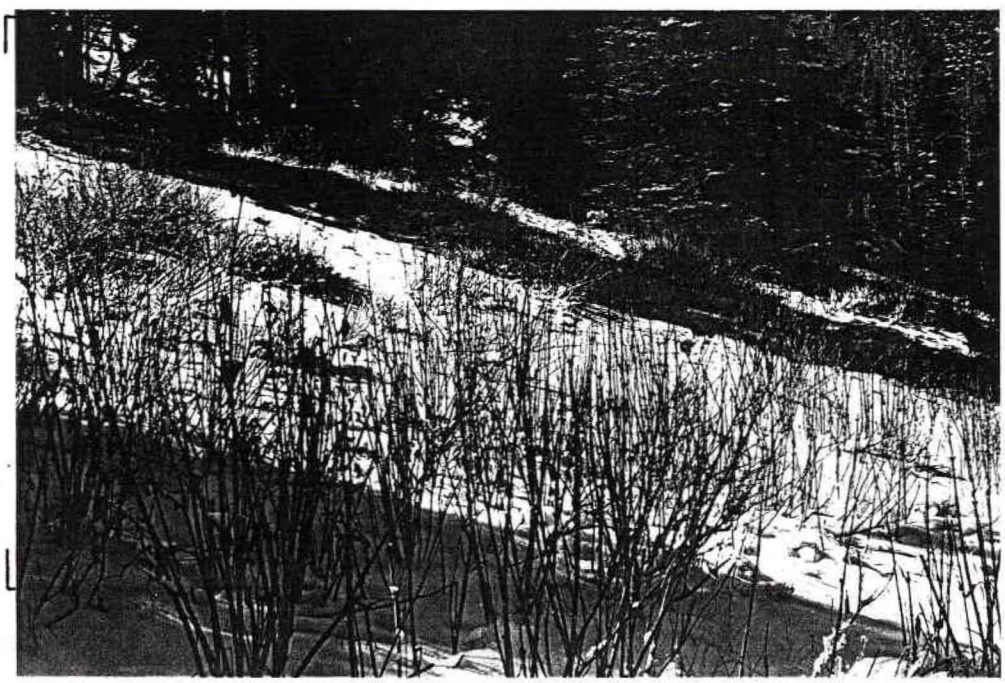
Quantity of water (gal/min): 2 gpm

Comments: Spring continuous by surface flow with another 100 feet to north

Photo Log

Area Photo

Site Photo



Wildlife Information

	Species Observed	Species Sign Observed
Mammals		elk tracks mule deer tracks
Birds		
Reptiles and Amphibians		

Habitat Considerations

No significant wetland vegetation, Sambucus moderately browsed

Comments: open shrub meadow border by spruce/fir and aspen, 2-4 in. snow

CEDAR CREEK ASSOCIATES

SEEP AND SPRING INVENTORY
VALLEY CAMP OF UTAH, INC.

General Information

Seep, Spring Identification: 25-4 Date: 10/16/84 Time: 11:52 am

Observers: Phelan, Viert Elevation: 9,400'

Legal Description: NE 1/4, SW 1/4, Sec. 25, T 13S, R 6 E

Dimensions: 50' X 75' Acreage: 0.09

Slope (Est.): 20% Aspect: N

USFWS Classification: Non-applicable

Vegetation Information

Species	Vigor	% Cover (Est.)	Importance
Trees			
None			
Shrubs			
Ribes sp., Sambucus sp.	N/A	15%	N/A
Herbaceous			
Festuca sp., Carex spp., Agropyron sp.	N/A	? (snow cover)	N/A

Adjacent Communities Spruce/fir, Aspen mixture (Open)

Comments: Photo Nos. and orientation: Site 1-13 212°; Adj 1-14 30°

Hydrology Information

Source of water: Blackhawk Formation

Quantity of water (gal/min): None

Comments:

Photo Log

Area Photo

Site Photo

Wildlife Information

Species Observed	Species Sign Observed

Mammals

Birds

Hairy woodpecker

Reptiles and Amphibians

Habitat Considerations

No significant wetland vegetation

Comments: open meadow bordered by spruce/fir and aspen communities, 2-4 in. snow.

CEDAR CREEK ASSOCIATES

SEEP AND SPRING INVENTORY
VALLEY CAMP OF UTAH, INC.

General Information

Seep, Spring Identification: 25-3, 25-10* Date: 10/16/84 Time: 11:28 am

Observers: Phelan/Viert Elevation: 9,440'

Legal Description: NE 1/4, SW 1/4, Sec. 25, T 13S, R 6 E

Dimensions: 100' X 400' Acreage: 0.92

Slope (Est.): 20% Aspect: N

USFWS Classification: Non-applicable

Vegetation Information

Species	Vigor	% Cover (Est.)	Importance
Trees			
None			
Shrubs			
Sambucus sp., Ribes sp.	N/A	15%	N/A
Herbaceous			
Veratrum sp., Stipa sp., Festuca sp., Agropyron sp.	N/A	? (snow cover)	N/A

Adjacent Communities spruce/fir-aspen

Comments: Photo Nos. and orientation: Site 1-11 175°; adj. 1-12 20°

Hydrology Information

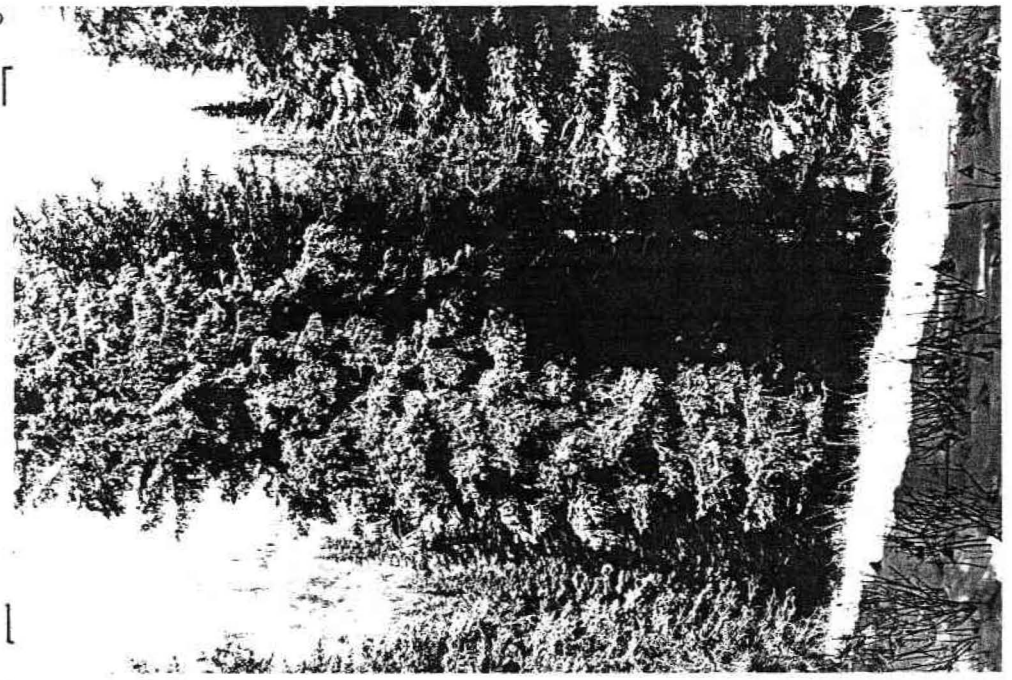
Source of water: Blackhawk Formation

Quantity of water (gal/min): 1 gpm

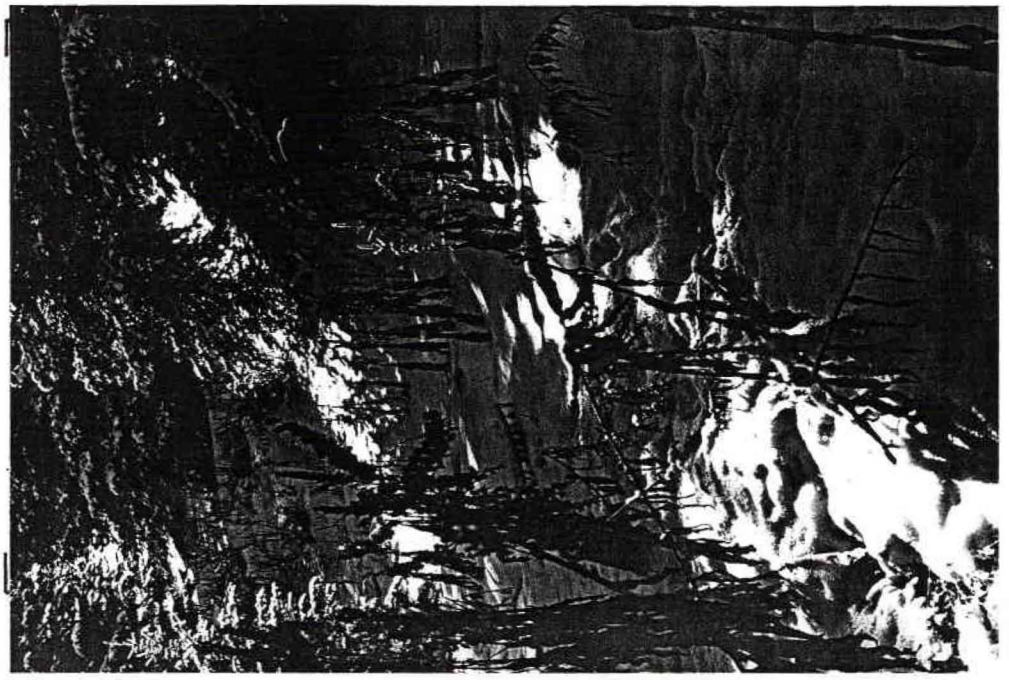
Comments: * springs connected by surface flow.

Photo Log

Area Photo



Site Photo



Wildlife Information

	Species Observed	Species Sign Observed
Mammals		elk tracks
Birds		
Reptiles and Amphibians		

Habitat Considerations

No significant wetland vegetation

Comments: Small clearing in spruce/fir community

2-4 in. snow

CEDAR CREEK ASSOCIATES

SEEP AND SPRING INVENTORY
VALLEY CAMP OF UTAH, INC.

General Information

Seep, Spring Identification: 25-9 Date: 10/16/84 Time: 11:18 am

Observers: Phelan & Viert Elevation: 9400'

Legal Description: NE 1/4, SW 1/4, Sec. 25, T 13S, R 6 E

Dimensions: 50' dia. Acreage: 0.04

Slope (Est.): 25% Aspect: N

USFWS Classification: Non-applicable

Vegetation Information

Species	Vigor	% Cover (Est.)	Importance
Trees			
Shrubs			
Ribes sp.	N/A	<5%	N/A
Herbaceous			
Veratrum, sp., Festuca sp. Agropyron sp., Rudbeckia laciniata, Carex spp.	N/A	? (snow cover)	N/A

Adjacent Communities spruce/fir forest

Comments: Photo Orientation & Nos: Site 1-9 140°; adj. 1-10 350°

Hydrology Information

Source of water: Blackhawk Formation

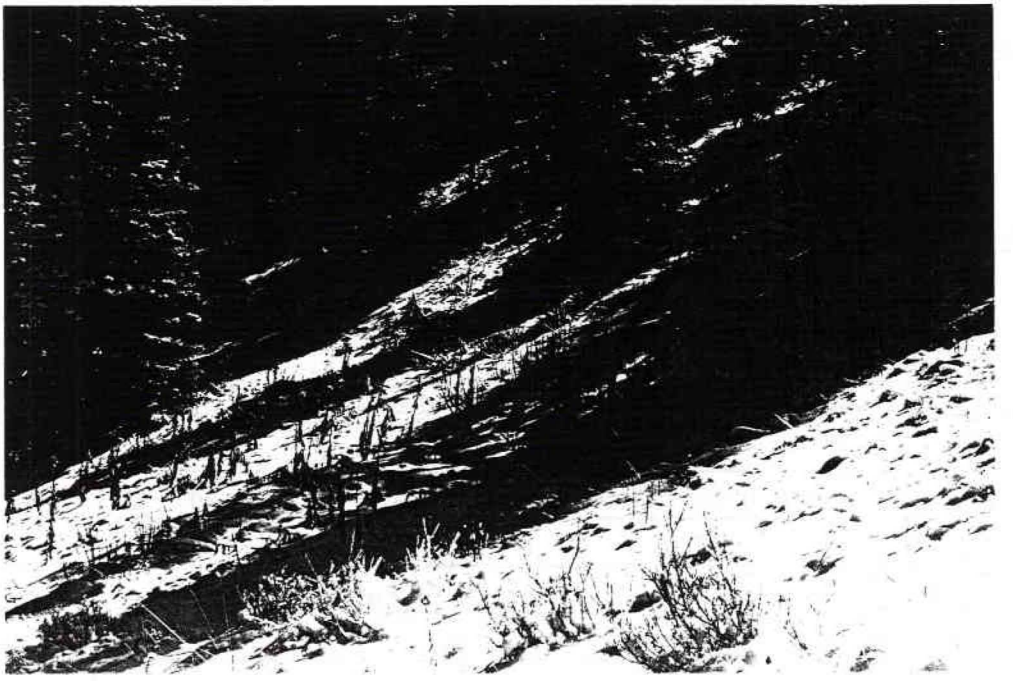
Quantity of water (gal/min): .25 gpm

Comments: slump evident

Photo Log

Area Photo

Site Photo



Wildlife Information

	Species Observed	Species Sign Observed
Mammals		elk tracks
Birds		
Reptiles and Amphibians		

Habitat Considerations: No significant wetland vegetation, Sambucus moderately browsed

Comments: 3-4" snow

CEDAR CREEK ASSOCIATES

SEEP AND SPRING INVENTORY
VALLEY CAMP OF UTAH, INC.

General Information

Seep, Spring Identification: 25-8 Date: 10/16/84 Time: 11:07 am

Observers: Phelan/Viert Elevation: 9,400'

Legal Description: NE 1/4, SW 1/4, Sec. 25, T 13S, R 6 E

Dimensions: 75' X 50' Acreage: 0.09

Slope (Est.): 25% Aspect: N

USFWS Classification: Non-applicable

Vegetation Information

Species	Vigor	% Cover (Est.)	Importance
Trees			
None			
Shrubs			
Sambucus sp., Ribes sp.	N/A	10%	N/A
Herbaceous			
Veratrum sp., Stipa sp., Festuca sp., Agropyron sp.	N/A	? (snow cover)	N/A

Adjacent Communities Spruce/fir forest

Comments: Photo Nos. & Orientation: 1-7 Site 120°; 1-8 adj. 45°

Hydrology Information

Source of water: Blackhawk Formation

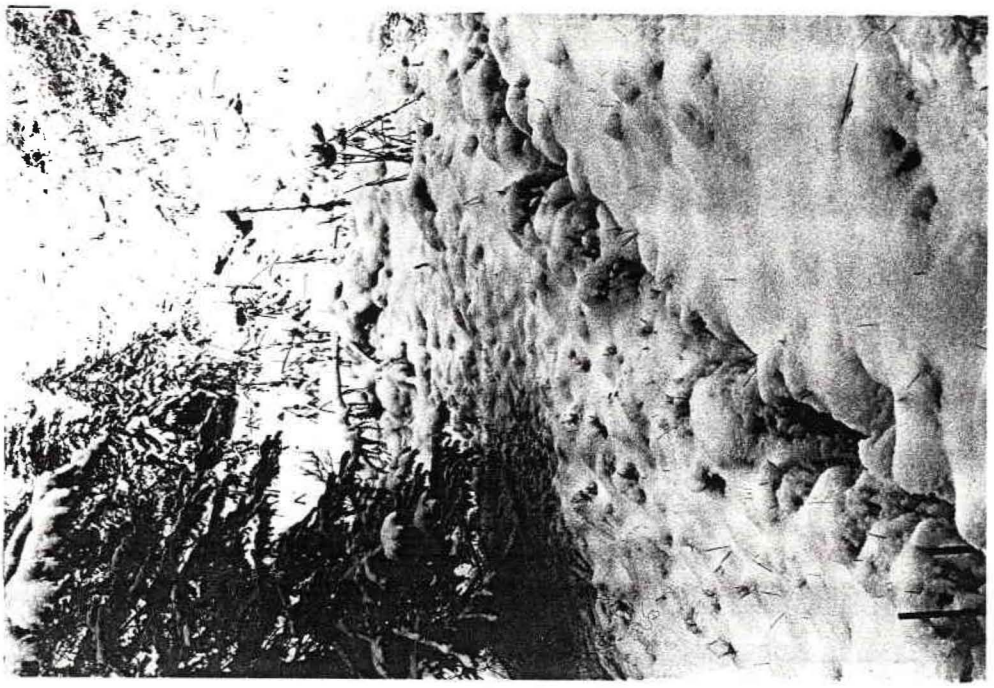
Quantity of water (gal/min): .25 gpm

Comments:

Photo Log

Area Photo

Site Photo



Wildlife Information

	Species Observed	Species Sign Observed
Mammals		
Birds		
Reptiles and Amphibians		

Habitat Considerations No significant wetland vegetation, open grass/ forb meadow in spruce/fir forest

Comments: 3-4 inches snow cover

CEDAR CREEK ASSOCIATES

SEEP AND SPRING INVENTORY
VALLEY CAMP OF UTAH, INC.

General Information

Seep, Spring Identification: 25-2 Date: 10/16/84 Time: 10:30 am

Observers: Viert/Phelan Elevation: 9,400'

Legal Description: NE 1/4, SW 1/4, Sec. 25, T 13S, R 6 E

Dimensions: 30' W X 120' L Acreage: 0.08

Slope (Est.): 40% Aspect: N

USFWS Classification: Non-applicable

Vegetation Information

Species	Vigor	% Cover (Est.)	Importance
Trees			
None			
Shrubs			
Ribes sp., Sambucus sp.	N/A	< 5%	N/A
Herbaceous			
Geranium sp., Veratrum sp., Carex spp., Equisetum sp.	N/A	? (snow cover)	N/A

Adjacent Communities Spruce fir forest

Comments: Photo Nos. & Orientation: 1-3 Site 100°; 1-4 Adj. 295°

Hydrology Information

Source of water: Blackhawk Formation

Quantity of water (gal/min): 2

Comments: Flowing

Photo Log

Area Photo

Site Photo

APPENDIX 722.100c

Water Rights

CONSULTANTS/ENGINEERS
HANSEN ALLEN & LUCE inc
SALT LAKE CITY, UTAH

VALLEY CAMP OF UTAH, INC. - LOCAL WATER RIGHTS

WATER RIGHT	QUANTITY CFS	AND/OR AC-FT	SOURCE DESCRIPTION or WELL INFO DIAMETER	DEPTH	YEAR LOG	POINT OF DIVERSION DESCRIPTION NORTH EAST	CNR SEC TWN RNG B&M	U N N	A P P	P E R	T E R	S U W	U G W	P T P	R E D
TOWNSHIP 13S RANGE 6E SL BASE AND MERIDIAN															
91 424	.0110	.00	Unnamed Spring				NE4SE4 SEC 1					X		X	X
WATER USE(S):															
Marakis, Nick				165 E. 100 S.			Price	UT							
91 431	.0000	.00	Unnamed Stream				SW4NW4 SEC 12 TO NE4SW4 SEC 1					X		X	X
WATER USE(S):															
Marakis, Nick				166 East 1st South			Price	UT 84501							
91 432	.0110	.00	Unnamed Spring				SE4SW4 SEC 12					X		X	X
WATER USE(S):															
Marakis, Nick				165 East 1st South			Price	UT 84501							
91 433	.0110	.00	Unnamed Spring				NW4NE4 SEC 13					X		X	X
WATER USE(S):															
Marakis, Nick				675 East 1st South			Price	UT 84501							
91 436	.0000	.00	Unnamed Stream				SW4SW4 SEC 12 TO NW4SE4 SEC 7					X		X	X
WATER USE(S):															
Marakis, Nick				165 East 1st South			Price	UT 84501							
91 463	.0110	.00	Unnamed Spring				NE4SE4 SEC 11 ON RESERVOIR					X		X	X
WATER USE(S): STOCKWATERING															
Eureka Energy				215 Market Street			San Francisco	CA 94106							
91 471	.0000	.00	Unnamed Stream				SW4NW4 SEC 12 TO NE4SW4 SEC 1					X		X	X
WATER USE(S):															
Marakis, John				165 East 1st South			Price	UT 84501							
91 472	.0110	.00	Unnamed Spring				SE4SW4 SEC 12					X		X	X
WATER USE(S):															
Marakis, John				165 East 1st South			Price	UT 84501							
91 473	.0110	.00	Unnamed Spring				NW4NE4 SEC 13					X		X	X
WATER USE(S):															
Marakis, John				165 East 1st South			Price	UT 84501							
91 476	.0000	.00	Unnamed Stream				SW4SW4 SEC 12 TO NW4SE4 SEC 7					X		X	X
WATER USE(S):															
Marakis, John				165 East 1st South			Price	UT 84501							
91 1019	.0000	.00	Trib to Boardinghouse Canyon C				NE4SE4 SEC 36 TO NE4NE4 SEC 36					X		X	X
WATER USE(S): STOCKWATERING															
USA Forest Service				324-25th Street			Ogden	UT 84401							
91 1020	.0000	.00	Boardinghouse Canyon Creek				NE4NW4 SEC 36 TO NE4NE4 SEC 36					X		X	X
WATER USE(S): STOCKWATERING															
USA Forest Service				324-25th Street			Ogden	UT 84401							
91 1021	.0000	.00	Boardinghouse Canoyn Creek				NE4NW4 SEC 36 TO NE4NE4 SEC 36					X		X	X
WATER USE(S): STOCKWATERING															
USA Forest Service				324-25th Street			Ogden	UT 84401							
91 1022	.0000	.00	South Fork Eccles Canyon Creek				NE4SW4 SEC 25 TO NW4SE4 SEC 24					X		X	X
WATER USE(S): STOCKWATERING															
USA Forest Service				324-25th Street			Ogden	UT 84401							
91 1023	.0000	.00	Trib to South Fork Eccles Cany				SE4SE4 SEC 23 TO NW4SE4 SEC 24					X		X	X
WATER USE(S): STOCKWATERING															
USA Forest Service				324-25th Street			Ogden	UT 84401							
91 1024	.0000	.00	Trib to South Fork Eccles Cany				SE4SE4 SEC 23 TO NW4SE4 SEC 24					X		X	X
WATER USE(S): STOCKWATERING															
USA Forest Service				324-25th Street			Ogden	UT 84401							
91 1025	.0000	.00	Trib to Eccles Canyon Creek				SE4NW4 SEC 23 TO SE4SW4 SEC 13					X		X	X
WATER USE(S): STOCKWATERING															
USA Forest Service				324-25th Street			Ogden	UT 84401							
91 1026	.0000	.00	Trib to Eccles Canyon Creek				NE4NW4 SEC 23 TO SE4SE4 SEC 14					X		X	X
WATER USE(S): STOCKWATERING															
USA Forest Service				324-25th Street			Ogden	UT 84401							
91 1027	.0000	.00	Eccles Canyon Creek				SE4SW4 SEC 14 TO SE4SE4 SEC 13					X		X	X
WATER USE(S): STOCKWATERING															
USA Forest Service				324-25th Street			Ogden	UT 84401							
91 1028	.0000	.00	Eccles Canyon Creek				SE4SW4 SEC 14 TO SE4SE4 SEC 13					X		X	X
WATER USE(S): STOCKWATERING															
USA Forest Service				324-25th Street			Ogden	UT 84401							
91 1029	.0000	.00	Trib to Winter Quarters Canyon				SE4NW4 SEC 14 TO NE4SW4 SEC 2					X		X	X
WATER USE(S): STOCKWATERING															
USA Forest Service				324-25th Street			Ogden	UT 84401							
91 1030	.0000	.00	Trib to Winter Quarters Canyon				NW4NW4 SEC 14 TO SW4SE4 SEC 11					X		X	X
WATER USE(S): STOCKWATERING															
USA Forest Service				324-25th Street			Ogden	UT 84401							
91 1031	.0000	.00	Trib to Winter Quarters Canyon				SW4SE4 SEC 10 TO SE4SE4 SEC 3					X		X	X
WATER USE(S): STOCKWATERING															
USA Forest Service				324-25th Street			Ogden	UT 84401							
91 1032	.0000	.00	Trib to Winter Quarters Canyon				SW4NW4 SEC 10 TO SE4SE4 SEC 3					X		X	X
WATER USE(S): STOCKWATERING															
USA Forest Service				324-25th Street			Ogden	UT 84401							
91 1033	.0000	.00	Winter Quarters Canyon Creek				SE4NE4 SEC 4 TO NE4SE4 SEC 2					X		X	X
WATER USE(S): STOCKWATERING															
USA Forest Service				324-25th Street			Ogden	UT 84401							
91 1034	.0000	.00	Trib. to Winter Quarters Canyo				SW4NE4 SEC 3 TO SW4SW4 SEC 2					X		X	X
WATER USE(S): STOCKWATERING															
USA Forest Service				324-25th Street			Ogden	UT 84401							
91 1035	.0150	.00	Unnamed Spring				SE4NW4 SEC 3					X		X	X
WATER USE(S): STOCKWATERING															
USA Forest Service				324-25th Street			Ogden	UT 84401							
91 1037	.0000	.00	Trib. to Winter Quarters Canyo				NE4NW4 SEC 3 TO NW4SE4 SEC 2					X		X	X
WATER USE(S): STOCKWATERING															
USA Forest Service				324-25th Street			Ogden	UT 84401							

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Updated: Spring 1990

VALLEY CAMP OF UTAH, INC. - LOCAL WATER RIGHTS

WATER RIGHT	QUANTITY CFS	AND/OR AC-FT	SOURCE DESCRIPTION or WELL INFO DIAMETER	DEPTH	YEAR LOG	POINT OF DIVERSION DESCRIPTION NORTH	EAST	CNR	SEC	TWN	RNG	B&M	UNP	APR	TER	SUR	UGW	PWP	RED
91 3057	.0000	.00	South Fork Eccles Canyon Creek					SW4NE4	SEC 24 TO	SE4NE4	SEC 24			X		X		X	
WATER USE(S): STOCKWATERING																			
Oman, Milton A.			717 Continental Bank Building					Salt Lake City				UT							
91 3059	.0000	.00	South Fork Eccles Canyon Creek					NE4NE4	SEC 24 TO	NE4NE4	SEC 24			X		X		X	
WATER USE(S):																			
Marakis, John			160 East 1st South					Price				UT 84501							
91 3060	.0000	.00	South Fork Eccles Canyon Creek					NE4NE4	SEC 24 TO	NE4NE4	SEC 24			X		X		X	
WATER USE(S):																			
Marakis, Nick			789 East 8th North					Price				UT 84501							
91 3070	.0000	.00	Eccles Canyon Creek					SW4SE4	SEC 13 TO	NE4NE4	SEC 24			X		X		X	
WATER USE(S):																			
Marakis, John			160 East 1st South					Price				UT 84501							
91 3071	.0000	.00	Eccles Canyon Creek					SW4SE4	SEC 13 TO	NE4NE4	SEC 24			X		X		X	
WATER USE(S):																			
Marakis, Nick			789 East 8th North					Price				UT 84501							
91 3633	.0000	.00	Winter Quarters Creek					SW4NW4	SEC 1 TO	SE4NE4	SEC 1			X		X		X	
WATER USE(S):																			
Allred, D.Euray								Fountain Green				UT 84632							
91 3635	.0000	.00	Unnamed Stream					SE4NW4	SEC 1 TO	SE4NW4	SEC 1			X		X		X	
WATER USE(S): STOCKWATERING																			
Allred, D. Euray								Fountain Green				UT 84632							
91 4344	.0000	.00	South Fork Eccles Canyon Creek					SE4SE4	SEC 23 TO	SW4SW4	SEC 24			X		X		X	
WATER USE(S): STOCKWATERING																			
USA Forest Service			324 25th Street					Ogden				UT 84401							
91 4345	.0150	.00	Unnamed Spring					SW4NW4	SEC 13					X		X		X	
WATER USE(S): STOCKWATERING																			
USA Forest Service			324 25th Street					Ogden				UT 84401							
91 4361	.0000	.00	Trib. of Winter Quarters Cyn.					SW4NW4	SEC 10 TO	SW4NW4	SEC 3			X		X		X	
WATER USE(S): STOCKWATERING																			
USA Forest Service			324 25th Street					Ogden				UT 84401							
93 5	.0110	.00	North Huntington Spring					SE4SW4	SEC 10					X		X		X	
WATER USE(S): STOCKWATERING																			
USA Forest Service			324 25th Street					Ogden				UT 84401							
93 6	.0000	.00	North Fork Huntington Creek					SE4SW4	SEC 10 TO	LOT 4	SEC 15			X		X		X	
WATER USE(S): STOCKWATERING																			
USA Forest Service			324 25th Street					Ogden				UT 84401							
93 8	.0000	.00	Fork of Huntington Creek					SE4NW4	SEC 23 TO	SE4NW4	SEC 22			X		X		X	
WATER USE(S): STOCKWATERING																			
USA Forest Service			324 25th Street					Ogden				UT 84401							
93 9	.0000	.00	Kitchen Fork of Huntington Cre					LOT 6	SEC 16 TO	SE4NW4	SEC 22			X		X		X	
WATER USE(S): STOCKWATERING																			
USA Forest Service			324 25th Street					Ogden				UT 84401							
93 11	.0000	.00	Swens Canyon Creek					SW4NW4	SEC 28 TO	LOT 2	SEC 28			X		X		X	
WATER USE(S): STOCKWATERING																			
USA Forest Service			324 25th Street					Ogden				UT 84401							
93 12	.0000	.00	Huntington Creek					SE4NW4	SEC 22 TO	SW4SE4	SEC 34			X		X		X	
WATER USE(S): STOCKWATERING																			
USA Forest Service			324 25th Street					Ogden				UT 84401							
93 13	.0000	.00	Burnout Canyon Creek					SW4SE4	SEC 23 TO	LOT 7	SEC 34			X		X		X	
WATER USE(S): STOCKWATERING																			
USA Forest Service			324 25th Street					Ogden				UT 84401							
93 14	.0000	.00	James Canyon Creek					SE4NW4	SEC 36 TO	LOT 4	SEC 35			X		X		X	
WATER USE(S): STOCKWATERING																			
USA Forest Service			324 25th Street					Ogden				UT 84401							
93 18	.0000	.00	Flat Canyon Creek					SE4NW4	SEC 33 TO	SW4SE4	SEC 34			X		X		X	
WATER USE(S): STOCKWATERING																			
USA Forest Service			324 25th Street					Ogden				UT 84401							
93 19	.0000	.00	Boulger Canyon Creek					SW4NW4	SEC 4 TO	SW4SE4	SEC 34			X		X		X	
WATER USE(S): STOCKWATERING																			
USA Forest Service			324 25th Street					Ogden				UT 84401							
93 1538	.0110	.00	Burnout Spring					NE4SE4	SEC 27					X		X		X	
WATER USE(S): STOCKWATERING																			
USA Forest Service			324 25th Street					Ogden				UT 84401							
93 1539	.0110	.00	Eccles Spring					SW4SW4	SEC 14					X		X		X	
WATER USE(S): STOCKWATERING																			
USA Forest Service			324 25th Street					Ogden				UT 84401							
93 1540	.0110	.00	Moss Pond Spring					NW4SW4	SEC 14					X		X		X	
WATER USE(S): STOCKWATERING																			
USA Forest Service			324 25th Street					Ogden				UT 84401							
93 1541	.0110	.00	Eccles "A" Pond Spring					NW4NW4	SEC 15					X		X		X	
WATER USE(S): STOCKWATERING																			
USA Forest Service			324 25th Street					Ogden				UT 84401							
93 1547	.0000	.00	Basin Creek					SE4NE4	SEC 4 TO	NW4SW4	SEC 34			X		X		X	
WATER USE(S): STOCKWATERING																			
USA Forest Service			324 25th Street					Ogden				UT 84401							
E1114	.0000	30.00	Underground Water Well			N 900	E 1700	SW	13	13S	6E	SL		X			X		
WATER USE(S): OTHER																			
Coastal States Energy Co.,			Coastal Tower, Nine Greenway Plaza,					Huston				TX 77046							
TOWNSHIP 13S RANGE 7E SL BASE AND MERIDIAN																			
91 2	.0000	12020.00	Gooseberry Creek			S 970	E 60	W4	5	13S	7E	SL		X					X
WATER USE(S): IRRIGATION DOMESTIC STOCKWATERING MUNICIPAL OTHER																			
Price River Water Users Association										Price			UT 84501						
91 106	.0090	.00	Three Springs			N2527' W1444' FROM SE COR SEC 27								X		X		X	
WATER USE(S): DOMESTIC STOCKWATERING						S410' W50' FROM N4 COR SEC 27													
						S163' W300' FROM NE COR SEC 28													
Jacob, Calvin K.										Pleasant Grove			UT 84062						

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91 200	.1340	.00	10	280	1953 Y N	450	E 500	S4	8	13S	7E	SL		X			X		
WATER USE(S): IRRIGATION DOMESTIC OTHER																			
Alpine School District				50 North Center Street						American Fork				UT 84003					
91 201	.0680	.00	Unnamed Spring			NW4NW4 SEC 9								X		X		X	
WATER USE(S): STOCKWATERING																			
Thomas, Earl										Scofield				UT					
91 345	.7500	.00	Green Canyon Spring Stream		S	650	W 100	N4	17	13S	7E	SL		X		X			
WATER USE(S): IRRIGATION																			
Nicolaides, Tom				1026 East 1st South						Salt Lake City				UT					
Nicolaides, Leon														UT					
Stathis, Mary														UT					
Daraban, Bessie														UT					
91 352	.0000	.00	Hopkins Creek			SE4NW4 SEC 3 TO SE4NE4 SEC 27								X		X		X	
WATER USE(S): DOMESTIC																			
Anderson, Clarence (Estate)										Price				UT					
91 354	.0190	.00	Two Springs Trib to Winter Qua		N	388	E 437	W4	5	13S	7E	SL		X		X			
WATER USE(S): OTHER																			
Pioneer Ditch Company #1										Price				UT 84501					
91 407	.0110	.00	Unnamed Spring			SE4SW4 SEC 27								X		X		X	
WATER USE(S):																			
Jacob, Calvin K.										Pleasant Grove				UT 84062					
91 408	.0110	.00	Unnamed Spring			SW4SW4 SEC 28								X		X		X	
WATER USE(S):																			
Jacob, Calvin K.										Pleasant Grove				UT 84062					
91 423	.0000	.00	Winter Quarters Creek			SW4NW4 SEC 6 TO SE4NE4 SEC 6								X		X		X	
WATER USE(S):																			
Marakis, Nick				165 E. 100 S.						Price				UT 94106					
91 425	.0220	.00	Unnamed Spring			NW4SW4 SEC 6								X		X		X	
WATER USE(S):																			
Marakis, Nick				165 E. 100 S.						Price				UT					
91 434	.0110	.00	Unnamed Spring			NE4SW4 SEC 18								X		X		X	
WATER USE(S):																			
Marakis, Nick				165 East 1st South						Price				UT 84501					
91 435	.0110	.00	Unnamed Spring			SE4NW4 SEC 7								X		X		X	
WATER USE(S):																			
Marakis, Nick				165 East 1st South						Price				UT 84501					
91 437	.0000	.00	Clear Creek			SE4SE4 SEC 8 TO SW4SE4 SEC 8								X		X		X	
WATER USE(S):																			
Marakis, Nick														UT					
91 438	.0000	.00	Clear Creek			NE4NE4 SEC 20 TO NE4NE4 SEC 20								X		X		X	
WATER USE(S):																			
Marakis, Nick				165 East 1st South						Price				UT 84501					
91 440	.0000	.00	Unnamed Wash			SW4SE4 SEC 16								X		X		X	
WATER USE(S):																			
Markis, Nick				165 East 1st South						Price				UT 84501					
91 441	.0000	.00	Unnamed Stream			SE4SW4 SEC 16								X		X		X	
WATER USE(S):																			
Marakis, Nick				165 East 1st South						Price				UT 84501					
91 455	.0110	.00	Unnamed Spring			NW4SE4 SEC 6								X		X		X	
WATER USE(S): STOCKWATERING																			
Radakovich, Robert				340 North 6th East						Price				UT 84501					
91 462	.0000	.00	Winter Quarters Creek			SW4NW4 SEC 6 TO SE4NE4 SEC 6								X		X		X	
WATER USE(S):																			
Eureka Energy Company				215 Market Street						San Francisco				CA 94106					
91 464	.0220	.00	Unnamed Spring			NW4SW4 SEC 6								X		X		X	
WATER USE(S):																			
Eureka Energy Company				215 Market Street						San Francisco				CA 94106					
91 474	.0110	.00	Unnamed Spring			NE4SW4 SEC 18								X		X		X	
WATER USE(S):																			
Marakis, John				165 East 1st South						Price				UT 84501					
91 475	.0110	.00	Unnamed Spring			SE4NW4 SEC 7								X		X		X	
WATER USE(S):																			
Marakis, John				165 East 1st South						Price				UT 84501					
91 477	.0000	.00	Clear Creek			SE4SE4 SEC 8 TO SW4SE4 SEC 8								X		X		X	
WATER USE(S):																			
Marakis, John				165 East 1st South						Price				UT 84501					
91 478	.0000	.00	Clear Creek			NE4NE4 SEC 20 TO NE4NE4 SEC 20								X		X		X	
WATER USE(S):																			
Marakis, John				165 East 1st South						Price				UT 84501					
91 479	.0000	.00	Unnamed Wash			SW4SE4 SEC 16								X		X		X	
WATER USE(S):																			
Marakis, John (Estate)														UT					
91 480	.0000	.00	Unnamed Stream			SE4SW4 SEC 16								X		X		X	
WATER USE(S):																			
Marakis, John				165 East 1st South						Price				UT 84501					
91 481	.0110	.00	Unnamed Spring			NE4SW4 SEC 6								X		X		X	
WATER USE(S): STOCKWATERING																			
Radakovich, Robert				340 North 6th East						Price				UT 84501					
91 482	.0000	.00	Unnamed Stream			NE4NE4 SEC 7 TO NE4NE4 SEC 7								X		X		X	
WATER USE(S): STOCKWATERING																			
Radakovich, Robert				340 North 6th East						Price				UT 84501					
91 483	.4430	.00	Winter Quarters Creek		N	700	W 1400	E4	6	13S	7E	SL		X		X			
WATER USE(S): IRRIGATION STOCKWATERING																			
Radakovich, Robert				340 North 6th East						Price				UT 84501					

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91 1148	.0000	.00	Green Canyon Stream					SW4SE4	SEC 7 TO NE4NE4 SEC 18						X		X		X
	WATER USE(S): STOCKWATERING																		
	Nicolaides, Tom & Leon		1026 East 1st South							Salt Lake City			UT	84101					
	Daraban, Mary Stathis & Bessie												UT						
91 1643	.0110	.00	Unnamed Spring					NW4SW4	SEC 31						X		X		X
	WATER USE(S): STOCKWATERING																		
	Thomas, Jack									Scofield			UT						
91 1644	.0000	.00	Unnamed Spring					NW4SE4	SEC 8						X		X		X
	WATER USE(S):																		
	Thomas, Lee												UT						
91 1678	.0000	.00	Unnamed Stream					SE4NE4	SEC 28 TO NE4NE4 SEC 20						X		X		X
	WATER USE(S):																		
	Jacob, Calvin K.									Pleasant Grove			UT	84062					
91 1679	.0110	.00	Unnamed Spring					SW4SE4	SEC 21						X		X		X
	WATER USE(S): DOMESTIC																		
	Jacob, Calvin K.									Pleasant Grove			UT	84062					
91 1680	.0110	.00	Unnamed Spring					SE4SE4	SEC 21						X		X		X
	WATER USE(S):																		
	Jacob, Calvin K.									Pleasant Grove			UT	84062					
91 1681	.0110	.00	Unnamed Spring					SW4NE4	SEC 21						X		X		X
	WATER USE(S):																		
	Jacob, Calvin K.									Pleasant Grove			UT	84062					
91 1986	.0500	.00	Unnamed Spring			S	1020 W	310	NE 17	13S	7E	SL			X		X		
	WATER USE(S): OTHER																		
	LDS Church, Corporation of the Presiding Bishopric 50 E. N. Temple										Salt Lake City			UT					
91 2018	.0000	.00	Green Canyon Stream					NW4NW4	SEC 17						X		X		X
	WATER USE(S): STOCKWATERING																		
	Stilson, L. Clan & Beth									Orangeville			UT						
91 2019	.0000	.00	Unnamed Stream					NW4SW4	SEC 8						X		X		X
	WATER USE(S): STOCKWATERING																		
	Stilson, L. Clan & Beth									Orangeville			UT						
91 2020	.0000	.00	Green Canyon Stream					NW4NW4	SEC 17 TO NE4NW4 SEC 17						X		X		X
	WATER USE(S): STOCKWATERING																		
	Stilson, L. Clan & Beth									Orangeville			UT						
91 2048	.0000	.00	Pleasant Creek					SW4NE4	SEC 8 TO NW4NE4 SEC 8						X		X		X
	WATER USE(S): STOCKWATERING																		
	Radakovich, Robert & Ellen R.		340 N. 600 E.							Price			UT	84501					
91 2049	.0110	.00	Unnamed Spring					NW4SE4	SEC 8						X		X		X
	WATER USE(S):																		
	Radakovich, Robert & Ellen R.		340 N. 600 E.							Price			UT	84501					
91 2144	.0220	.00	Simonsen Spring			N	470 E	1280	W4 6	13S	7E	SL			X		X		
	WATER USE(S): DOMESTIC																		
	Simonsen, Elrie & Bertha									Scofield			UT						
91 2145	.0220	.00	Simonsen Spring			N	470 E	1280	W4 6	13S	7E	SL			X		X		
	WATER USE(S): DOMESTIC																		
	Radakovich, Robert		340 North 6th East							Price			UT	84501					
91 2146	.0000	.00	Winter Quarters Creek					SW4NW4	SEC 5 TO SW4NW4 SEC 5						X		X		X
	WATER USE(S): STOCKWATERING																		
	Simonsen, Elrie & Bertha									Scofield			UT						
91 2548	.0000	.00	Pleasant Creek					NW4SE4	SEC 8 TO NW4SE4 SEC 8						X		X		X
	WATER USE(S):																		
	Radakovich, Robert & Ellen R.		340 N. 600 E.							Price			UT	84501					
91 2549	.0000	.00	Pleasant Creek					NW4SE4	SEC 8 TO NW4SE4 SEC 8						X		X		X
	WATER USE(S):																		
	Radakovich, Robert & Ellen P.		General Delivery							Price			UT	84526					
91 2669	.0110	.00	Unnamed Spring					NE4NE4	SEC 7						X		X		X
	WATER USE(S): STOCKWATERING																		
	Simonsen, H.B. & Della									Price			UT	84501					
91 2970	.0150	.00	Unnamed Spring					NE4NW4	SEC 17						X		X		X
	WATER USE(S): STOCKWATERING																		
	Georgedes, Angelo		761 North 3rd East							Price			UT	84501					
91 2971	.1060	.00	Clear Creek			S	700 W	1840	E4 8	13S	7E	SL			X		X		
	WATER USE(S): IRRIGATION																		
	Radakovich, Robert & Ellen P.												UT						
91 2972	.1060	.00	Clear Creek			S	700 W	1840	E4 8	13S	7E	SL			X		X		
	WATER USE(S): IRRIGATION																		
	Radakovich, Robert & Ellen R.		340 N. 600 E.							Price			UT	84501					
91 2973	.3810	.00	Clear Creek			S	700 W	1840	E4 8	13S	7E	SL			X		X		
	WATER USE(S): IRRIGATION																		
	Radakovich, Robert & Ellen R.		340 N. 600 E.							Price			UT	84501					
91 2974	.1700	.00	Clear Creek			S	700 W	1840	E4 8	13S	7E	SL			X		X		
	WATER USE(S): IRRIGATION																		
	Seely, Justus O.		General Delivery							Mt. Pleasant			UT	84647					
91 2975	.0110	.00	Unnamed Spring			N	420 W	80	S4 5	13S	7E	SL			X		X		
	WATER USE(S): IRRIGATION																		
	Radakovich, Robert & Ellen R.									Price			UT						
91 2976	.0110	.00	Unnamed Spring			N	100 W	10	S4 5	13S	7E	SL			X		X		
	WATER USE(S): IRRIGATION																		
	Radakovich, Robert & Ellen R.									Price			UT						
91 2977	.0750	.00	Clear Creek			S	700 W	1840	E4 8	13S	7E	SL			X		X		
	WATER USE(S): IRRIGATION																		
	Jensen, Fred and Shelia												UT						
91 2978	.6830	.00	Clear Creek			N	310 E	510	S4 5	13S	7E	SL			X		X		
	WATER USE(S): IRRIGATION																		
	Radakovich, Robert & Ellen R.									Price			UT						

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VALLEY CAMP OF UTAH, INC. - LOCAL WATER RIGHTS

WATER RIGHT	QUANTITY CFS	AND/OR AC-FT	SOURCE DESCRIPTION or WELL INFO DIAMETER	DEPTH	YEAR LOG	POINT OF DIVERSION DESCRIPTION NORTH	EAST	CNR	SEC	TWN	RNG	B&M	U N N	A P P	T E R	S U R	U G W	P T P	R E D
91 2979	.453	.00	Clear Creek			SW4NE4 SEC 5 TO NW4SE4 SEC 5									X		X		X
	WATER USE(S): IRRIGATION																		
	Jensen, Fred and Shelia																		
91 2980	.1000	.00	Clear Creek			N	310	E	510	S4	5	13S	7E	SL		X		X	
	WATER USE(S): IRRIGATION																		
	Helsten, Frank T. Jr. & Pamela G.											Salt Lake City			UT				
91 2981	.1000	.00	Clear Creek			N	310	E	510	S4	5	13S	7E	SL		X		X	
	WATER USE(S): IRRIGATION																		
	Marsing, Orson											Miller Creek			UT				
91 2982	.1000	.00	Clear Creek			N	310	E	510	S4	5	13S	7E	SL		X		X	
	WATER USE(S): IRRIGATION																		
	Pearson, Lillie			315 South 7th East								Salt Lake City			UT				
91 2983	.1000	.00	Clear Creek			N	310	E	510	S4	5	13S	7E	SL		X		X	
	WATER USE(S): IRRIGATION																		
	Biggs, Thomas (Jr.)											Columbia			UT				
91 2984	.1000	.00	Clear Creek			N	310	E	510	S4	5	13S	7E	SL		X		X	
	WATER USE(S): IRRIGATION																		
	Burton, Waino E.											Scofield			UT				
91 2985	.1000	.00	Clear Creek			N	310	E	510	S4	5	13S	7E	SL		X		X	
	WATER USE(S): IRRIGATION																		
	Conover, Phyllis M.			358 South 1st West								Provo			UT	84601			
91 2986	.0150	.00	Clear Creek			N	310	E	510	S4	5	13S	7E	SL		X		X	
	WATER USE(S): IRRIGATION																		
	Sherman, William & Armeda											Helper			UT	84526			
91 2987	.1000	.00	Clear Creek			N	310	E	510	S4	5	13S	7E	SL		X		X	
	WATER USE(S): IRRIGATION																		
	Johnson, Leah B.			273 West Main								Spanish Fork			UT	84660			
91 2988	.0000	.00	Clear Creek			N	310	E	510	S4	5	13S	7E	SL		X		X	
	WATER USE(S): IRRIGATION																		
	Davis, Nolan G. and Larue H.											Helper			UT	84526			
91 2989	.1000	.00	Clear Creek			N	310	E	510	S4	5	13S	7E	SL		X		X	
	WATER USE(S): IRRIGATION																		
	Scofield, Town of											Scofield			UT				
91 2990	1.1660	.00	Clear Creek			N	310	E	510	S4	5	13S	7E	SL		X		X	
	WATER USE(S): IRRIGATION																		
	Madsen, Della L.											Meadow			UT	84644			
91 2991	.0000	.00	Clear Creek			N	310	E	510	S4	5	13S	7E	SL		X		X	
	WATER USE(S): IRRIGATION																		
	Jones, John B.											Spanish Fork			UT	84660			
91 3007	.6300	.00	Winter Quarters Creek			N	700	W	1400	E4	6	13S	7E	SL		X		X	
	WATER USE(S): IRRIGATION																		
	Simonsen, Elrie M. & Bertha											Scofield			UT				
91 3008	.6930	.00	Winter Quarters Creek			N	700	W	1400	E4	5	13S	7E	SL		X		X	
	WATER USE(S): IRRIGATION																		
	Jensen, Fred and Shelia														UT				
91 3009	.0680	.00	Winter Quarters Creek			N	780	W	60	E4	6	13S	7E	SL		X		X	
	WATER USE(S): IRRIGATION																		
	Simonsen, Elrie M. & Bertha											Scofield			UT				
91 3010	.2130	.00	Winter Quarters Creek			N	780	W	60	E4	6	13S	7E	SL		X		X	
	WATER USE(S): IRRIGATION																		
	Jensen, Fred and Shelia														UT				
91 3011	.0000	.00	Winter Quarters Creek			SE4NE4 SEC 5 TO SW4NE4 SEC 5									X		X		X
	WATER USE(S): STOCKWATERING																		
	Jensen, Fred and Shelia														UT				
91 3012	.0150	.00	Unnamed Spring			S	1030	W	300	NE	17	13S	7E	SL		X		X	
	WATER USE(S): IRRIGATION STOCKWATERING																		
	LDS Church, Corporation of the Presiding														UT				
91 3040	.0000	.00	Clear Creek			SE4SE4 SEC 17 TO SE4SE4 SEC 17									X		X		X
	WATER USE(S): STOCKWATERING																		
	Nicolaides, Tom			1026 East 1st South								Salt Lake City			UT				
	Nicolaides, Leon			1026 East 1st South								Salt Lake City			UT				
	Stathis, Mary			1026 East 1st South								Salt Lake City			UT				
	Daraban, Bessie			1026 East 1st South								Salt Lake City			UT				
91 3045	.0000	.00	Clear Creek			SE4SE4 SEC 20 TO NE4SE4 SEC 20									X		X		X
	WATER USE(S):																		
	Oman, Milton A			717 Continental Bank Building								Salt Lake City			UT	84111			
91 3051	.0000	.00	Clear Creek			SW4SW4 SEC 21 TO SW4SW4 SEC 21									X		X		X
	WATER USE(S):																		
	Marakis, John (Estate)			160 East 1st South								Price			UT	84501			
91 3052	.0000	.00	Clear Creek			SW4SW4 SEC 21 TO SW4SW4 SEC 21									X		X		X
	WATER USE(S):																		
	Marakis, Nick			789 East 8th North								Price			UT	84501			
91 3053*	.0000	.00	Clear Creek			SW4SW4 SEC 28 TO NE4NE4 SEC 28									X		X		X
	WATER USE(S):																		
	Oman, Milton A.			717 Continental Bank Building								Salt Lake City			UT				
91 3056	.0000	.00	Unnamed Stream			NW4NE4 SEC 17 TO NW4NE4 SEC 17									X		X		X
	WATER USE(S): STOCKWATERING																		
	Nicolaides, Tom			1026 East 1st South								Salt Lake City			UT	84102			
	Stathis, Mary N.														UT				
	Daraban, Bessie N.														UT				
	Nicolaides, Leon														UT				
91 3072	.0000	.00	Eccles Canyon Creek			NW4NW4 SEC 19 TO NE4NE4 SEC 19									X		X		X
	WATER USE(S):																		
	Oman, Milton A.			717 Contintental Bank Building								Salt Lake City			UT				
91 3074	.0000	.00	Eccles Canyon Creek			SW4SW4 SEC 17 TO SE4SW4 SEC 17									X		X		X
	WATER USE(S):																		
	Oman, Milton A.			717 Continental Bank Building								Salt Lake City			UT				

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WATER RIGHT	QUANTITY CFS	AND/OR AC-FT	SOURCE DESCRIPTION or WELL INFO DIAMETER	DEPTH	YEAR LOG	POINT OF DIVERSION DESCRIPTION NORTH	EAST	CNR	SEC	TWN	RNG	B&M	U N N	A P P	P E R	T S R	S U W	U G W	P T P	R E D
91 3075	.0000	.00	Eccles Canyon Creek					SW4SE4	SEC 17 TO SE4SE4	SEC 17					X		X		X	
WATER USE(S): STOCKWATERING																				
Nicolaides, Tom			1026 East 1st South							Salt Lake City					UT	84102				
Nicolaides, Leon															UT					
Stathis, Mary															UT					
Daraban, Bessie															UT					
91 3076	.0110	.00	Unnamed Spring					SE4SW4	SEC 20						X		X		X	
WATER USE(S):																				
Oman, Milton A.			717 Continental Bank Building							Salt Lake City					UT					
91 3078	.0110	.00	Unnamed Spring					NW4NE4	SEC 29						X		X		X	
WATER USE(S):																				
Oman, Milton A.			717 Continental Bank Building							Salt Lake City					UT					
91 3080	.0000	.00	Boardinghouse Canyon Creek					NW4NW4	SEC 31 TO NW4NW4	SEC 31					X		X		X	
WATER USE(S):																				
Oman, Milton A.			717 Continental Bank Building							Salt Lake City					UT					
91 3081	.0000	.00	Boardinghouse Canyon Creek					NE4NW4	SEC 31 TO NE4NW4	SEC 31					X		X		X	
WATER USE(S): STOCKWATERING																				
Thomas, Jack										Scofield					UT					
91 3082	.0000	.00	Boardinghouse Canyon Creek					NW4NE4	SEC 31 TO NE4NW4	SEC 32					X		X		X	
WATER USE(S):																				
Oman, Milton A.			717 Continental Bank Building							Salt Lake City					UT					
91 3083	.0000	.00	Finn Canyon Creek					SW4SW4	SEC 31 TO SE4SW4	SEC 32					X		X		X	
WATER USE(S): STOCKWATERING																				
Jensen, Lavern										Fairview					UT	84629				
91 3084	.0000	.00	Finn Canyon Creek					NE4SW4	SEC 32 TO NE4SW4	SEC 32					X		X		X	
WATER USE(S):																				
Oman, Milton A.			717 Continental Bank Building							Salt Lake City					UT					
91 3085	.0000	.00	Trib. to Mud Creek					NW4SW4	SEC 34 TO NE4SW4	SEC 33					X		X		X	
WATER USE(S):																				
Michelog, Anton										Helper					UT	84542				
91 3088	.0000	.00	Trib. to Mud Creek					SW4NW4	SEC 3 TO NE4SW4	SEC 33					X		X		X	
WATER USE(S): STOCKWATERING																				
Michelog, Anton										Price					UT	84501				
91 3089	.0000	.00	Unnamed Stream					SW4SE4	SEC 33						X		X		X	
WATER USE(S):																				
Michelog, Anton										Price					UT	84501				
91 3090	.0000	.00	Unnamed Stream					NW4SE4	SEC 33						X		X		X	
WATER USE(S): STOCKWATERING																				
Michelog, Anton										Price					UT	84501				
91 3091	.0000	.00	Unnamed Stream					SE4NW4	SEC 34						X		X		X	
WATER USE(S):																				
Michelog, Anton										Price					UT	84501				
91 3092	.0000	.00	Unnamed Stream					SE4NW4	SEC 34						X		X		X	
WATER USE(S):																				
Michelog, Anton										Price					UT	84501				
91 3093	.0000	.00	Unnamed Stream					SE4NW4	SEC 34						X		X		X	
WATER USE(S):																				
Michelog, Anton										Price					UT	84501				
91 3094	.0330	.00	3 Springs					NE4NW4	SEC 17						X		X		X	
WATER USE(S): MUNICIPAL																				
Scofield Town										Scofield					UT					
91 3406	.0110	.00	Unnamed Spring					NE4NE4	SEC 30						X		X		X	
WATER USE(S): STOCKWATERING																				
Madsen, Della L.										Meadow					UT	84644				
91 3425	.0000	.00	Unnamed Stream					NE4NW4	SEC 22						X		X		X	
WATER USE(S):																				
Jacob, Calvin K.										Pleasant Grive					UT	84602				
91 3440	.0000	.00	Clear Creek					SE4NE4	SEC 20 TO SE4NE4	SEC 20					X		X		X	
WATER USE(S):																				
Jacob, Calvin K.										Pleasant Grove					UT	84062				
91 3460	.1340	.00	Underground Water Well			N 450	E 500	S4	8	13S	7E	SL			X				X	
WATER USE(S): IRRIGATION DOMESTIC OTHER																				
Alpine School District Board of Educatio 50 North Center										American Fork					UT	84003				
91 3499	.0110	.00	Finn Spring					SW4SW4	SEC 31						X		X		X	
WATER USE(S): DOMESTIC STOCKWATERING																				
Jensen, Lavern										Fairview					UT	84629				
91 3500	.0110	.00	Unnamed Spring					SE4SW4	SEC 31						X		X		X	
WATER USE(S): DOMESTIC STOCKWATERING																				
Jensen, Lavern										Fairview					UT	84629				
91 3504	.0110	.00	Unnamed Spring					SE4SW4	SEC 27						X		X		X	
WATER USE(S):																				
Jacob, Calvin K.										Pleasant Grove					UT	84062				
91 3586	.5000	.00	Clear Creek Spring Area			S 1070	W 1660	NE	32	13S	7E	SL			X		X			
WATER USE(S): IRRIGATION DOMESTIC STOCKWATERING OTHER																				
Kanawha and Hocking Coal and Coke Compan 700 Westgate Tower										Cleveland					OH	44116				
91 3587	.0000	.00	Boardinghouse Canyon Creek					NW4NE4	SEC 22 TO NW4NW4	SEC 33					X		X		X	
WATER USE(S): STOCKWATERING																				
Kanawha and Hocking Coal and Coke Compan 700 Westgate Tower										Cleveland					OH	44116				
91 3588	.0000	.00	Finn Canyon Creek					NW4SE4	SEC 32 TO NW4SW4	SEC 33					X		X		X	
WATER USE(S): STOCKWATERING																				
Kanawha and Hocking Coal and Coke Compan 700 Westgate Tower										Cleveland					OH	44116				
91 3589	.0000	.00	Mud Creek					NW4NW4	SEC 4 TO NW4NW4	SEC 33					X		X		X	
WATER USE(S): STOCKWATERING																				
Kanawah and Hocking Coal and Coke Compan 700 Westgate Tower										Cleveland					OH	44116				
91 3590	.4460	.00	Clear Creek Mine Tunnel #3 (UG			S 2800	E 700	NW	33	13S	7E	SL			X				X	
WATER USE(S):																				
Kanawha and Hocking Coal and Coke Compan 700 Westgate Tower										Cleveland					OH	44116				

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91 3591	.0000		.00	Unnamed Stream					NE4SW4	SEC 27					X		X		X	
	WATER USE(S):																			
	Jacob, Calvin K.										Pleasant Grove				UT	84062				
91 3595	.03		.00	O'Connor Mine Tunnel #1 (UG Wa			S 1600	E 800	NW	31	12S	10E	SL		X			X		
	WATER USE(S): INDUSTRIAL																			
	Kanawha and Hocking Coal and Company			700 Westgate Tower							Cleveland				OH	44116				
91 3596	.0470		.00	O'Connor Mine Tunnel #2 (UG Wa			S 1400	E 1000	NW	31	13S	7E	SL		X			X		
	WATER USE(S): OTHER																			
	Kanawha and Hocking Coal and Company			700 Westgate Tower							Cleveland				OH	44116				
91 3622	.0160		.00	Clear Creek			N 310	E 510	S4	5	13S	7E	SL		X		X			
	WATER USE(S): IRRIGATION																			
	Nicolodemas, Mae										Scofield				UT	84538				
91 3640*	.0000		.00	Hopkins Creek					SE4SW4	SEC 10 TO NE4SW4 SEC 31					X		X		X	
	WATER USE(S): STOCKWATERING																			
	Georgedes, Angelo (c/o Luke Pappas)										Price				UT	84501				
91 3644	.0000		.00	Clear Creek					SW4SE4	SEC 5 TO SW4SE4 SEC 5					X		X		X	
	WATER USE(S):																			
	Radakovich, Robert & Ellen R.										Price				UT					
91 3645	.0000		.00	Clear Creek					NW4SE4	SEC 5 TO SW4NE4 SEC 5					X		X		X	
	WATER USE(S): STOCKWATERING																			
	Jensen, Fred and Shelia														UT					
91 3665	.0000		.00	Clear Creek				NE4SE4 SEC 17 TO N1250' W610' FROM E4 COR SEC 17							X		X		X	
	WATER USE(S):																			
	Marakisk, John (Estate)														UT					
91 3666	.0000		.00	Clear Creek				NE4SE4 SEC 17 TO N1250' W610' FROM E4 COR SEC 17							X		X		X	
	WATER USE(S):																			
	Marakis, Nick														UT					
91 3667	.0000		.00	Clear Creek				N1250' W630' FROM E4 COR SEC 17 TO NE4NE4 SEC 17							X		X		X	
	WATER USE(S): DOMESTIC STOCKWATERING																			
	LDS Church, Corporation of Presiding Bis			50 E. N. Temple, Twelfth Floor (Real Est							Salt Lake City				UT	84501				
91 3668	.0150		.00	Unnamed Spring					NE4NW4	SEC 17					X		X		X	
	WATER USE(S): STOCKWATERING																			
	Stilson, L. Clan & Beth										Orangeville				UT					
91 4027	.0110		.00	Unnamed Spring					SW4NW4	SEC 10					X		X		X	
	WATER USE(S): STOCKWATERING																			
	Telonis, George (C/O Luke Pappas)										Price				UT	84501				
91 4031	.0110		.00	Unnamed Spring					SE4SW4	SEC 9					X		X		X	
	WATER USE(S): STOCKWATERING																			
	Telonis, George (C/O Luke Pappas)										Price				UT	84501				
91 4032	.0110		.00	Unnamed Spring					NW4SW4	SEC 15					X		X		X	
	WATER USE(S): STOCKWATERING																			
	Telonis, George (C/O Luke Pappas)										Price				UT	84501				
91 4033	.0110		.00	Unnamed Spring					NE4SW4	SEC 15					X		X		X	
	WATER USE(S): STOCKWATERING																			
	Telonis, George (C/O Luke Pappas)										Price				UT	84501				
91 4084	.0220		.00	Tony's Springs (2)					NE4NW4	SEC 34					X		X		X	
	WATER USE(S): STOCKWATERING																			
	Jacob, Calvin K.										Pleasant Grove				UT	84062				
91 4089	.0000		.00	Magazine Canyon Creek					NE4NE4	SEC 33 TO NE4NW4 SEC 33					X		X		X	
	WATER USE(S): STOCKWATERING																			
	Jacob, Calvin K.										Pleasant Grove				UT	84062				
91 4090	.0000		.00	Unnamed Spring					SE4SW4	SEC 21					X		X		X	
	WATER USE(S): STOCKWATERING																			
	Jacob, Calvin K.										Pleasant Grove				UT	84660				
91 4103	.0110		.00	Unnamed Spring					NE4SW4	SEC 34					X		X		X	
	WATER USE(S): STOCKWATERING																			
	Michelog, Anton										Price				UT	84501				
91 4104	.0110		.00	Unnamed Spring					SE4SW4	SEC 34					X		X		X	
	WATER USE(S): STOCKWATERING																			
	Michelog,Anton										Price				UT	84501				
91 4140	.1500		.00	Mine Tunnel (Utah Number 1)			S 1020	W 310	NE	17	13S	7E	SL		X			X		
	WATER USE(S): DOMESTIC OTHER																			
	Kanawha and Hocking Coal and Coke Compan			700 West Gate Tower							Cleveland				OH	44116				
91 4141	.2860		.00	O'Conner Mine Tunnel Number 2			S 1400	E 1000	NW	31	13S	7E	SL		X			X		
	WATER USE(S): DOMESTIC OTHER																			
	Kanawha and Hocking Coal and Coke Compan			700 West Gate Tower							Cleveland				OH	44116				
91 4142	.3030		.00	O'Conner Mine Tunnell Number 1			S 1600	E 800	NW	31	13S	7E	SL		X			X		
	WATER USE(S): DOMESTIC OTHER																			
	Kanawha and Hocking Coal and Coke Compan			700 West Gate Tower							Cleveland				OH	44116				
91 4143	.0110		.00	Unnamed Spring					NW4SE4	SEC 9					X		X		X	
	WATER USE(S): STOCKWATERING																			
	Telonis, George			C/O Luke Pappas							Price				UT	84501				
91 4159	1.0000		.00	Old Gibson Mine Tunnel (Utah #			N 1220	W 780	SE	8	13S	7E	SL		X			X		
	WATER USE(S): OTHER																			
	Kanawha and Hocking Coal and Coke Compan			700 West Gate Tower							Cleveland				OH	44116				
91 4174	1.0000		.00	6	50 - 250		S 970	E 60	W4	5	13S	7E	SL		X			X		
	WATER USE(S): DOMESTIC STOCKWATERING																			
	Radakovich, Robert			340 North 600 East							Price				UT	84501				
91 4195	.1000		.00	Mud Creek & Green Canyon Sprin			N 310	E 510	S4	5	13S	7E	SL		X		X			
	WATER USE(S): MUNICIPAL																			
	Scofield Town										Scofield				UT	84538				
E452	.0000		.00	Underground Water Well			S 970	E 60	W4	5	13S	7E	SL		X			X		
	WATER USE(S): STOCKWATERING																			
	Radakevich, Robert			340 North 600 East							Price				UT	84501				
E772	.4460		.00	12	210		N 1150	W 400	SE	8	13S	7E	SL		X			X		
	WATER USE(S): OTHER																			
	Valley Camp Coal Company										Castle Gate				UT	84514				

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E1058	.0000	7.70	8	300		S 980	E 1090	NW	30	13S	7E	SL		X			X		
	WATER USE(S): OTHER																		
	Price River Water User's Association									Price								UT 84501	
E1560	.0000	118.00	8	500 - 1000		N 460	W 1725	SW	17	13S	7E	SL		X			X		
	WATER USE(S): MINING																		
	Coastal States Energy Company			Nine Greenway Plaza						Houston								TX 77046	
E1658	.0000	1.00	Unnamed Spring			S 120	W 2540	E4	8	13S	7E	SL		X			X		
	WATER USE(S): OTHER																		
	Radakovich, Robert and Ellen			340 North 6th East						Price								UT 84501	
E1691	.0000	7.70	8	720		N 50	E 1940	SW	19	13S	7E	SL		X			X		
	WATER USE(S): OTHER																		
	Valley Camp of Utah, Inc.			Scofield Route						Helper								UT 84526	
E1906	.0000	118.00			1981	N 460	E 1725	SW	17	13S	7E	SL		X			X		
	WATER USE(S): OTHER																		
	Coastal States Energy Company			Coastal Tower, Nine Greenway Plaza						Houston								TX 77046	
E1934	.0000	20.00	Underground Water Well			S 2100	E 2500	NW	6	13S	7E	SL		X			X		
	WATER USE(S): OTHER																		
	UCO, Incorporated			1580 Lincoln Suite 530						Denver								UT 80203	
E2188	.0000	1.00	8	140		S 310	W 580	N4	8	13S	7E	SL		X			X		
	WATER USE(S): STOCKWATERING OTHER																		
	LDS Church, Corp. of Presiding Bishopric			50 East North Temple						Salt Lake City								UT 84150	
E2475	.0000	.00	6	220	1987 Y	S 1400	W 1305	NE	17	13S	7E	SL		X			X		
	WATER USE(S): DOMESTIC																		
	Corp. Presiding Bishopric - LDS Church			50 East North Temple						Salt Lake City								UT 84150	
TOWNSHIP 14S RANGE 6E SL BASE AND MERIDIAN																			
93 7	.0000	.00	Bear Canyon			N300' E1250' FROM W4 COR SEC 15 TO SE4NW4 SEC 15								X			X		X
	WATER USE(S): STOCKWATERING																		
	Carlisle, John			428 West 330 South						Bountiful								UT 84010	
	Conder, Mana H.			428 West 330 South						Bountiful								UT 84010	
93 76	.0000	.00	Bear Canyon Creek			NW4NW4 SEC 16 TO N300' E1240' FROM W4 COR SEC 15								X			X		X
	WATER USE(S): STOCKWATERING																		
	Phelps Dodge Corporation			300 Park Ave.						New York								NY 10010	
93 77	.0000	.00	Bear Canyon Creek			SE4NW4 SEC 15 TO SE4NE4 SEC 15								X			X		X
	WATER USE(S): STOCKWATERING																		
	Utah Power & Light Company			1407 West North Temple Street						Salt Lake City								UT 84140	
93 78	.0000	.00	Coal Creek			NE4SW4 SEC 36 TO SE4NW4 SEC 1								X			X		X
	WATER USE(S): STOCKWATERING																		
	USA Forest Service			324 25th Street						Ogden								UT 84401	
93 79	.0000	.00	Coal Creek			NW4NE4 SEC 1 TO SE4NW4 SEC 1								X			X		X
	WATER USE(S): STOCKWATERING																		
	USA Forest Service			324 25th Street						Ogden								UT 84401	
93 81	.0000	.00	Huntington Creek			NW4SW4 SEC 13 TO NW4SW4 SEC 13								X			X		X
	WATER USE(S): STOCKWATERING																		
	Nielsen, Bernard									Fountain Green								UT 84632	
93 82	.0000	.00	Huntington Creek			NE4SE4 SEC 3 TO SW4SE4 SEC 11								X			X		X
	WATER USE(S): STOCKWATERING																		
	Utah Power & Light Company			1407 West North Temple Street						Salt Lake City								UT 84140	
93 83	.0000	.00	Cox Canyon Creek			SE4SE4 SEC 1 TO NW4SE4 SEC 12								X			X		X
	WATER USE(S): STOCKWATERING																		
	USA Forest Service			324 25th Street						Ogden								UT 84401	
93 84	.0000	.00	Valentine Gulch			NE4SE4 SEC 12 TO NW4NE4 SEC 13								X			X		X
	WATER USE(S): STOCKWATERING																		
	USA Forest Service			324 25th Street						Ogden								UT 84401	
93 86	.0000	.00	Valentine Gulch			SW4NE4 SEC 13 TO SW4SE4 SEC 13								X			X		X
	WATER USE(S): STOCKWATERING																		
	Kemmerer Coal Company			300 Park Ave.						New York								NY 10010	
93 87	.0000	.00	Valentine Gulch			SW4NE4 SEC 13 TO SW4SE4 SEC 13								X			X		X
	WATER USE(S): STOCKWATERING																		
	Phelps Dodge Corporation			300 Park Ave.						New York								NY 10010	
93 89	.0000	.00	Valentine Gulch			SE4SW4 SEC 13 TO SE4SW4 SEC 13								X			X		X
	WATER USE(S): DOMESTIC STOCKWATERING																		
	Valentine Gulch Inc. et al.			c/o H.G. Christensen, 700 Continental Ban						Salt Lake City								UT 84101	
	E. R. Dunke and D. C. Anderson																	UT	
93 96	.0000	.00	Huntington Creek			NW4NE4 SEC 14 TO NW4SW4 SEC 13								X			X		X
	WATER USE(S): STOCKWATERING																		
	Utah Power & Light Company			1407 West North Temple Street						Salt Lake City								UT 84140	
93 97	.0000	.00	Huntington Creek			NE4NW4 SEC 24 TO NE4NW4 SEC 24								X			X		X
	WATER USE(S): STOCKWATERING																		
	USA Forest Service			324 25th Street						Ogden								UT 84401	
93 101	.0000	.00	North Hughes Canyon Creek			NE4SW4 SEC 7 TO SE4SE4 SEC 24								X			X		X
	WATER USE(S): STOCKWATERING																		
	USA Forest Service			324 25th Street						Ogden								UT 84401	
93 103	.0000	.00	Hughes Canyon Creek			NE4SE4 SEC 18 TO SE4SE4 SEC 24								X			X		X
	WATER USE(S): STOCKWATERING																		
	USA Forest Service			324 25th Street						Ogden								UT 84401	
93 263	.0000	.00	Coal Creek			SW4NE4 SEC 11 TO SW4NE4 SEC 11								X			X		X
	WATER USE(S): STOCKWATERING																		
	Kemmerer Coal Company			300 Park Ave.						New York								NY 10010	
93 264	.0000	.00	Coal Creek			SW4NE4 SEC 11 TO SW4NE4 SEC 11								X			X		X
	WATER USE(S): STOCKWATERING																		
	Phelps Dodge Corporation			300 Park Ave.						New York								NY 10010	
93 265	.0000	.00	Coal Creek			SE4SE4 SEC 2 TO SE4SE4 SEC 2								X			X		X
	WATER USE(S): STOCKWATERING																		
	Utah Power & Light Company			1407 West North Temple Street						Salt Lake City								UT 84140	

Notes: General - Multiple points of diversion may exist for some water rights.
* - Water right not plotted on map due to description error.

VALLEY CAMP OF UTAH, INC. - LOCAL WATER RIGHTS

WATER RIGHT	QUANTITY CFS	AND/OR AC-FT	SOURCE DESCRIPTION or WELL INFO DIAMETER	DEPTH	YEAR LOG	NORTH	EAST	CNR	SEC	TWN	RNG	B&M	U N	A P	P E	T S R R	U G	P T	R E D
93 290	.0000		.00 Coal Creek						SW4NE4 SEC 11 TO NE4SW4 SEC 11						X		X		X
	WATER USE(S): STOCKWATERING																		
	Utah Power & Light Company			1407 West North Temple Street									Salt Lake City				UT	84140	
93 399	.0000		.00 Huntington Creek						NW4NE4 SEC 3 TO NW4SE4 SEC 3						X		X		X
	WATER USE(S): STOCKWATERING																		
	Utah Power & Light Company			1407 West North Temple Street									Salt Lake City				UT	84140	
93 498	.0000		.00 Left Fork Huntington Creek						NW4NW4 SEC 22 TO SE4SW4 SEC 22						X		X		X
	WATER USE(S): STOCKWATERING																		
	Kemmerer Coal Company			300 Park Ave.									New York				NY	10010	
93 500	.0000		.00 North Cleveland Reservoir Spri			S	580	E	1570	W4	22	14S	6E SL		X		X		
	WATER USE(S): STOCKWATERING																		
	State of Utah Division of State Lands &			3 Triad Center, Suite 400, 355 West Nort									Salt Lake City				UT	84180	
93 543	.0000		.00 Coal Creek						NE4SW4 SEC 1 TO SW4SW4 SEC 1						X		X		X
	WATER USE(S): STOCKWATERING																		
	Cook, Morris S. and Betty A.			Box 232									Moroni				UT	84646	
93 544	.0000		.00 Coal Creek						NE4NE4 SEC 11 TO NE4NE4 SEC 11						X		X		X
	WATER USE(S): STOCKWATERING																		
	Kemmerer Coal Company			300 Park Avenue									New York				NY	10010	
93 545	.0000		.00 Coal Creek						NE4NE4 SEC 11 TO NE4NE4 SEC 11						X		X		X
	WATER USE(S): STOCKWATERING																		
	Phelps Dodge Corporation			300 Park Avenue									New York				NY	10010	
93 549	.0000		.00 Cox Canyon Creek						NE4SW4 SEC 12 TO SW4SW4 SEC 12						X		X		X
	WATER USE(S): STOCKWATERING																		
	Kemmerer Coal Company			300 Park Ave.									New York				NY	10010	
93 550	.0000		.00 Cox Canyon Creek						NE4SW4 SEC 12 TO SW4SW4 SEC 12						X		X		X
	WATER USE(S): STOCKWATERING																		
	Phelps Dodge Corporation			300 Park Avenue									New York				NY	10010	
93 551	.0000		.00 Cox Canyon Creek						SW4SW4 SEC 12 TO NW4NE4 SEC 12						X		X		X
	WATER USE(S): STOCKWATERING																		
	Utah Power & Light Company			1407 West North Temple Street									Salt Lake City				UT	84140	
93 553	.0000		.00 James Canyon Creek						NW4NW4 SEC 2 TO NE4SE4 SEC 3						X		X		X
	WATER USE(S): STOCKWATERING																		
	Utah Power & Light Company			1407 West North Temple Street									Salt Lake City				UT	84140	
93 559	.0000		.00 Bear Canyon Creek						SW4NW4 SEC 14 TO SW4NE4 SEC 14						X		X		X
	WATER USE(S): STOCKWATERING																		
	Utah Power & Light Company			1407 West North Temple Street									Salt Lake City				UT	84140	
93 610	.0000		.00 Left Fork Huntington Creek						NW4NW4 SEC 22 TO SE4SW4 SEC 22						X		X		X
	WATER USE(S): STOCKWATERING																		
	Phelps Dodge Corporation			300 Park Ave.									New York				NY	10010	
93 832	.0000		.00 Bear Canyon Creek			NW4NW4 SEC 16 TO N300' E1240' FORM W4 COR SEC 15									X		X		X
	WATER USE(S): STOCKWATERING																		
	Kemmerer Coal Company			300 Park Ave.									New York				NY	10010	
93 1116	.0000	31264.00	Huntington Creek			N	2000	W	600	SE	14	14S	6E SL		X		X		
	WATER USE(S): POWER																		
	Utah Power & Light Company			1407 West North Temple Street									Salt Lake City				UT	84140	
93 1523	.0110		.00 Kemmerer Spring						NW4NE4 SEC 23						X		X		X
	WATER USE(S): STOCKWATERING																		
	USA Forest Service			324 25th Street									Ogden				UT	84401	
93 1524	.0110		.00 Valentine Pond Spring						SE4SE4 SEC 13						X		X		X
	WATER USE(S): STOCKWATERING																		
	USA Forest Service			324 25th Street									Ogden				UT	84401	
93 1528	.0110		.00 Valentine Ridge Spring #1						SE4SE4 SEC 12						X		X		X
	WATER USE(S): STOCKWATERING																		
	USA Forest Service			324 25th Street									Ogden				UT	84401	
93 1529	.0110		.00 Valentine Ridge Spring #2						SE4SE4 SEC 12						X		X		X
	WATER USE(S): STOCKWATERING																		
	USA Forest Service			324 25th Street									Ogden				UT	84401	
93 1531	.0110		.00 Cox Ridge Spring						SW4SE4 SEC 1						X		X		X
	WATER USE(S): STOCKWATERING																		
	USA Forest Service			324 25th Street									Ogden				UT	84401	
93 1532	.0110		.00 Cox Canyon Spring						NE4SE4 SEC 1						X		X		X
	WATER USE(S): STOCKWATERING																		
	USA Forest Service			324 25th Street									Ogden				UT	84401	
93 1533	.0110		.00 Coal Canyon Spring						SE4NE4 SEC 1						X		X		X
	WATER USE(S): STOCKWATERING																		
	USA Forest Service			324 25th Street									Ogden				UT	84401	
93 1537	.0110		.00 Coal Ridge Spring						NW4NW4 SEC 1						X		X		X
	WATER USE(S): STOCKWATERING																		
	USA Forest Service			324 25th Street									Ogden				UT	84401	
93 1629	.0000		.00 Coal Creek						NW4NE4 SEC 11 TO SW4NE4 SEC 11						X		X		X
	WATER USE(S): STOCKWATERING																		
	USA Forest Service			324 25th Street									Ogden				UT	84401	
93 1630	.0000		.00 Coal Creek						NW4NE4 SEC 11 TO SW4NE4 SEC 11						X		X		X
	WATER USE(S): STOCKWATERING																		
	USA Forest Service			324 25th Street									Ogden				UT	84401	
93 2925	.0000		.00 Huntington Creek						NW4NE4 SEC 24 TO NE4SE4 SEC 24						X		X		X
	WATER USE(S): STOCKWATERING																		
	Phelps Dodge Corporation			300 Park Avenue									New York				NY	10010	
93 2926	.0000		.00 Huntington Creek						NW4NE4 SEC 24 TO NE4SE4 SEC 24						X		X		X
	WATER USE(S): STOCKWATERING																		
	Kemmerer Coal Company			300 Park Avenue									New York				NY	10010	
TOWNSHIP 14S RANGE 7E SL BASE AND MERIDIAN																			
91 592	.0000		.00 Mud Creek						SW4SW4 SEC 4 TO SW4SW4 SEC 4						X		X		X
	WATER USE(S): STOCKWATERING																		
	Marakis, John (Estate)			165 East 100 South									Price				UT	84501	

Notes: General - Multiple points of diversion may exist for some water rights.
* - Water right not plotted on map due to description error.

VALLEY CAMP OF UTAH, INC. - LOCAL WATER RIGHTS

WATER RIGHT	QUANTITY CFS AND/OR AC-FT	SOURCE DESCRIPTION or WELL INFO DIAMETER DEPTH YEAR LOG NORTH EAST CNR SEC TWN RNG B&M	POINT OF DIVERSION DESCRIPTION	U N	A P	P E	T S	S U	U G	P W	R T	E D
91 593	.0000	.00 Mud Creek	SW4SW4 SEC 4 TO SW4SW4 SEC 4			X		X		X		
	WATER USE(S):											
	Marakis, Nick	165 East 100 South	Price			UT 84501						
91 999*	.0150	.00 Bob Wright Canyon Creek	NE4SW4 SEC 10 TO NW4SW4 SEC 1			X		X		X		
	WATER USE(S):											
	USA Forest Service	324 25th Street	Ogden			UT 84401						
91 1000	.0150	.00 Collar Spring	LOT 3 SEC 10			X		X		X		
	WATER USE(S):											
	USA Forest Service	324 25th Street	Ogden			UT 84401						
91 1001	.0150	.00 Unnamed Spring	NE4SW4 SEC 10			X		X		X		
	WATER USE(S):											
	USA Forest Service	324 25th Street	Ogden			UT 84401						
91 1002	.0150	.00 Unnamed Spring	NE4SW4 SEC 10			X		X		X		
	WATER USE(S):											
	USA Forest Service	324 25th Street	Ogden			UT 84401						
91 1003	.0150	.00 Unnamed Spring	NW4SE4 SEC 10			X		X		X		
	WATER USE(S):											
	USA Forest Service	324 25th Street	Ogden			UT 84401						
91 1005	.0150	.00 Unnamed Spring	NE4SW4 SEC 15			X		X		X		
	WATER USE(S):											
	USA Forest Service	324 35th Street	Ogden			UT 84401						
91 1006	.0000	.00 Trib. to Second Water Canyon C	NE4SW4 SEC 15 TO SW4SW4 SEC 14			X		X		X		
	WATER USE(S):											
	USA Forest Service	324 25th Street	Ogden			UT 84401						
91 1007	.0000	.00 Trib. to Bob Wright Canyon Cre	SE4SW4 SEC 10 TO NE4SE4 SEC 2			X		X		X		
	WATER USE(S):											
	USA Forest Service	324 25th Street	Ogden			UT 84401						
91 1008	.0000	.00 Snider Canyon Creek	SW4SW4 SEC 10 TO LOT 1 SEC 9			X		X		X		
	WATER USE(S):											
	USA Forest Service	324 25th Street	Ogden			UT 84401						
91 1009	.0000	.00 Trib. to Snider Canyon Creek	SW4SE4 SEC 9 TO LOT 1 SEC 9			X		X		X		
	WATER USE(S): STOCKWATERING											
	USA Forest Service	324 25th Street	Ogden			UT 84401						
91 1010	.0000	.00 Trib. to Mud Creek	SE4SE4 SEC 9 TO NE4NW4 SEC 16			X		X		X		
	WATER USE(S):											
	USA Forest Service	324 25th Street	Ogden			UT 84401						
91 1011	.0000	.00 Mud Creek	NW4SW4 SEC 16 TO LOT 4 SEC 9			X		X		X		
	WATER USE(S):											
	USA Forest Service	324 25th Street	Ogden			UT 84401						
91 1012	.0000	.00 Mud Creek	NE4SW4 SEC 17 TO LOT 4 SEC 9			X		X		X		
	WATER USE(S): STOCKWATERING											
	USA Forest Service	324 25th Street	Ogden			UT 84401						
91 1013	.0000	.00 Trib. to Mud Creek	NW4NE4 SEC 20 TO NE4SE4 SEC 17			X		X		X		
	WATER USE(S): STOCKWATERING											
	USA Forest Service	324 25th Street	Ogden			UT 84401						
91 1014	.0000	.00 Trib. to Mud Creek	SW4NW4 SEC 17 TO NE4NW4 SEC 16			X		X		X		
	WATER USE(S): STOCKWATERING											
	USA Forest Service	324 25th Street	Ogden			UT 84401						
91 1015	.0000	.00 Trib. to Mud Creek	SE4NE4 SEC 7 TO NW4SW4 SEC 9			X		X		X		
	WATER USE(S):											
	USA Forest Service	324 25th Street	Ogden			UT 84401						
91 1016	.0000	.00 Long Canyon Creek	NW4NE4 SEC 7 TO NE4SE4 SEC 6			X		X		X		
	WATER USE(S): STOCKWATERING											
	USA Forest Service	324 25th Street	Ogden			UT 84401						
91 1017	.0000	.00 Trib. to Long Canyon Creek	NW4SE4 SEC 6 TO NE4SE4 SEC 6			X		X		X		
	WATER USE(S): STOCKWATERING											
	USA Forest Service	324 35th Street	Ogden			UT 84401						
91 1018	.0000	.00 Tributary to Mud Creek	SW4SW4 SEC 8 TO NW4SW4 SEC 9			X		X		X		
	WATER USE(S): STOCKWATERING											
	USA Forest Service	324 25th Street	Ogden			UT 84401						
91 3014	.0000	.00 Snider Creek	SE4SE4 SEC 4 TO NW4SW4 SEC 4			X		X		X		
	WATER USE(S):											
	Michelog, Anton		Price			UT 84501						
91 3015	.0000	.00 Mud Creek	NW4SW4 SEC 4 TO SW4NW4 SEC 4			X		X		X		
	WATER USE(S):											
	Michelog, Anton		Price			UT 84501						
91 3086	.0000	.00 Long Canyon Creek	NW4SW4 SEC 5 TO SW4NW4 SEC 4			X		X		X		
	WATER USE(S):											
	Michelog, Anton		Price			UT 84501						
91 3087	.0110	.00 Unnamed Spring	SE4SW4 SEC 5			X		X		X		
	WATER USE(S):											
	Michelog, Anton		Price			UT 84501						
91 4105	.0110	.00 Unnamed Spring	SE4SE4 SEC 5			X		X		X		
	WATER USE(S): STOCKWATERING											
	Michelog, Anton		Price			UT 84501						
91 4106	.0110	.00 Unnamed Spring	NE4NE4 SEC 5			X		X		X		
	WATER USE(S): STOCKWATERING											
	Michelog, Anton		Price			UT 84501						
91 4241	.0000	.00 Trib. Second Water	NE4NW4 SEC 15 TO NW4SE4 SEC 14			X		X		X		
	WATER USE(S): STOCKWATERING											
	USA Forest Service	324 25th Street	Ogden			UT 84401						
91 4244	.0000	.00 Sniden Spring Stream	NE4SE4 SEC 9 TO NE4SE4 SEC 9			X		X		X		
	WATER USE(S): STOCKWATERING											
	USA Forest Service	324 25th Street	Ogden			UT 84401						
91 4246	.0000	.00 Dugway Spring Stream	NW4NE4 SEC 15 TO NW4NE4 SEC 15			X		X		X		
	WATER USE(S):											
	USA Forest Service	324 25th Street	Ogden			UT 84401						

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VALLEY CAMP OF UTAH, INC. - LOCAL WATER RIGHTS

WATER RIGHT	QUANTITY CFS	AND/OR AC-FT	SOURCE DESCRIPTION or WELL INFO DIAMETER	DEPTH	YEAR LOG	POINT OF DIVERSION DESCRIPTION NORTH	EAST	CNR	SEC	TWN	RNG	B&M	U N N	A P P	P E R	T E R	S U R	U G W	P T P	R E D
91 4334	.0150	.00	Snider Spring					NE4SE4	SEC 9						X		X		X	
	WATER USE(S): STOCKWATERING																			
	USA Forest Service			324 25th Street						Ogden								UT 84401		
91 4335	.0150	.00	Pine Spring					SW4NE4	SEC 22						X		X		X	
	WATER USE(S): STOCKWATERING																			
	USA Forest Service			324 25th Street						Ogden								UT 84401		
91 4336	.0150	.00	Dugway Spring					NW4SE4	SEC 15						X		X		X	
	WATER USE(S): STOCKWATERING																			
	USA Forest Service			324 25th Street						Ogden								UT 84401		
91 4349	.0000	.00	Mud Creek					NE4SW4	SEC 9 TO LOT 4 SEC 9						X		X		X	
	WATER USE(S): STOCKWATERING																			
	USA Forest Service			324 25th Street						Ogden								UT 84401		
93 104	.0000	.00	Unnamed Stream					NE4NW4	SEC 20 TO SE4SW4 SEC 19						X		X		X	
	WATER USE(S): STOCKWATERING																			
	USA Forest Service			324 25th Street						Ogden								UT 84401		
93 124	.0000	.00	Sawmill Canyon Creek					SW4NW4	SEC 21 TO NW4NW4 SEC 27						X		X		X	
	WATER USE(S): STOCKWATERING																			
	USA Forest Service			324 25th Street						Ogden								UT 84401		
93 125	.0000	.00	Sawmill Canyon Creek					SW4NW4	SEC 21 TO NE4NE4 SEC 28						X		X		X	
	WATER USE(S): STOCKWATERING																			
	USA Forest Service			324 25th Street						Ogden								UT 84401		
93 126	.0000	.00	Woodward Canyon Creek					SW4NW4	SEC 15 TO NW4NW4 SEC 27						X		X		X	
	WATER USE(S): STOCKWATERING																			
	USA Forest Service			324 25th Street						Ogden								UT 84401		
93 1518	.0110	.00	Hughes Pond Spring					NE4SE4	SEC 20						X		X		X	
	WATER USE(S): STOCKWATERING																			
	USA Forest Service			324 25th Street						Ogden								UT 84401		
93 1519	.0110	.00	Olsen Spring					SE4NW4	SEC 20						X		X		X	
	WATER USE(S): STOCKWATERING																			
	USA Forest Service			324 25th Street						Ogden								UT 84401		
93 1520	.0110	.00	Mud Spring					NE4NW4	SEC 20						X		X		X	
	WATER USE(S): STOCKWATERING																			
	USA Forest Service			324 25th Street						Ogden								UT 84401		
93 1525	.0110	.00	Valentine Spring					NW4SW4	SEC 18						X		X		X	
	WATER USE(S): STOCKWATERING																			
	USA Forest Service			324 25th Street						Ogden								UT 84401		
93 1526	.0110	.00	North Hughes Spring #1					NW4SE4	SEC 18						X		X		X	
	WATER USE(S): STOCKWATERING																			
	USA Forest Service			324 25th Street						Ogden								UT 84401		
93 1527	.0110	.00	North Hughes Spring #2					SW4SE4	SEC 7						X		X		X	
	WATER USE(S): STOCKWATERING																			
	USA Forest Service			324 25th Street						Ogden								UT 84401		
93 1530	.0110	.00	North Hughes Spring					NE4SW4	SEC 7						X		X		X	
	WATER USE(S): STOCKWATERING																			
	USA Forest Service			324 25th Street						Ogden								UT 84401		
E1669	.0000	3.00 4		180		S 2640	E 1056	NW	4	14S	7E	SL	X				X			
	WATER USE(S): OTHER																			
	Otani, Jack			Star Route, Clear Creek Box 555						Helper								CO 80202		
E2385	.0000	.50	Unnamed Spring			N 100	W 340	SE	4	14S	7E	SL	X				X			
	WATER USE(S): DOMESTIC																			
	Blackham, Max A.			2024 North 600 West						Pleasant Grove								UT 84062		

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APPENDIX 724.600

Subsidence Control Plan

CONSULTANTS/ENGINEERS
HANSEN ALLEN & LUCE inc
SALT LAKE CITY, UTAH

Valley Camp of Utah, Inc.

Subsidence Control Plan

January 1991

SUBSIDENCE CONTROL PLAN

This subsidence control plan is intended to be a compilation of facts and conditions related to subsidence as discussed throughout the mine permit renewal application submitted by Valley Camp of Utah Inc. to the Utah Division of Oil, Gas & Mining during the 1990 calendar year. Also included is information related to transit surveys of either existing or proposed survey lines within the permit area. Information contained herein is intended to meet the requirements of R614-301-521, 525, 623, 625, 632, 642, and 724.

Historical Surveys

The surface effects of subsidence have been monitored annually since 1982 through the use of pedestrian surveys. These ground pedestrian surveys have typically been conducted during the summer or late summer period of the year when ground cover is a minimum. During these surveys, a three or four man field crew traverses hillslopes above mine workings at an average spacing of 50 to 100 feet. Notes related to irregularity of the land surface are made based upon visual observations when they were thought to be the result of mine subsidence. Irregularities noted throughout the period of record include surface cracking, depressions, and sinkholes.

The Forest Service attempted to obtain subsidence related data through the use of aerial surveys in late 1970's and early 1980's. These surveys were unsuccessful in obtaining the desired data because of various problems related to flightline control. Efforts to obtain data using this method were abandoned in mid 1980's. Valley Camp of Utah, Inc. also attempted using aerial methods to obtain subsidence data during the late 1980's in order to eliminate the need for the ground pedestrian survey discussed above. It was the intent of these efforts to utilize the subsidence monitoring locations shown on Geologic Cross Section Mapping located within the permit renewal. By identifying these locations, aerial photography was employed to determine the extent of movement of each point, thereby allowing for an identification of the amount of subsidence which is occurring within the permit area. Several problems have occurred over the last few years as attempts have been made to collect useful aerial survey data. After the expenditure of money to collect the data, it was discovered that errors in land surface elevations throughout the subsidence study area as well as interference from heavy forest growth have made the data which has been collected of little value.

Noted Surface Disturbances

Surface effects of subsidence and other pertinent information have been documented throughout the period of record since 1982 and have been compiled onto maps identified as Maps R614-301-728.100a and R614-301-728.100b. Map R614-301-728.100a shows information related to the mine workings, local subsidence features identified through field surveys, cover lines and draw angles. In addition to mine workings, Map R614-301-728.100b shows subsidence lines for local area streams as well as the survey grid for the east main section of the mine. Survey data relative to the lines shown is printed on Map R614-301-728.100b.

Consistent with expectations and as shown on Map R614-301-728.100a, no surface effects of subsidence (including cracking and the development of sinkholes, etc.) have been found above areas where 1) pillars have not been pulled from the mine workings or 2) where the overburden above the mined coal seam is greater than ~~350 to 400~~ 700 feet.

During the initial survey of 1982, some subsidence cracking was documented on the sidehill east of the South Fork of Eccles Creek. In one location a hole had developed down the hill from a small spring (Spring S25-11). The flow of about 1.5 gallons per minute (gpm) from the spring disappeared into the hole. In the 1983 summer survey, subsidence effects were observed to have increased in the South Fork area, and subsidence had also appeared in Whisky Canyon directly south of the Belina No. 1 portal area. Cracks have appeared and some sink holes have developed. One of these sink holes is in a intermittent side tributary near the head of Whisky Creek south of the Belina Mines.

No surface evidences of subsidence were observed in the August 1983 survey in areas having more than about 350 feet of overburden above the mined coal seam, or where pillars have not been pulled. It is also noted that no new subsidence was noted as a result of the recent August 1990 pedestrian survey. It is anticipated however that additional subsidence will occur during the next few years as mining continues in the area adjacent to Whisky Creek.

Subsidence found to exist within the Blackhawk formation of the Mine Permit Area appears to be more significant than that experienced by other local mines. Two explanations are given for this. First, other mines generally have more overburden than is typical of subsided areas of the Belina Mines. Greater overburden thicknesses generally do not permit the development of cracks, holes, or other noticeable surface effects of subsidence because of the distance through which deformation must travel before being noticed on the surface. The second potential explanation for increased subsidence is that more faults have been found through the mining of local area coal reserves than were originally known to exist. The frequency of faulting in the

Mine Permit Area appears to be higher than that found in other surrounding mines. Faults reduce the ability of a formation to withstand stresses caused by extracting a coal seam, therefore resulting in subsequent subsidence. Consequently, in faulted areas, subsidence effects are likely to transmit further vertically.

Subsidence Impacts on the Local Environment

After studying hydrologic impacts of coal mines in the Blackhawk Formation of the Wasatch Plateau, Danielson et al. (1981) concluded:

> *Where subsidence has not been extensive and where water-bearing zones that overlie the Star Point-Blackhawk aquifer are perched, it is unlikely that mine dewatering induces greater recharge to the ground-water system. Neither is it likely under these conditions that the flow of springs that issue from the perched zones or the rate of natural downward leakage into the Star Point-Blackhawk aquifer are affected by mine dewatering. However, natural recharge and discharge relationships can change if hydraulic connection between the perched zones and the Star Point-Blackhawk aquifer is increased by fracturing due to subsidence.*

No noticeable changes in the high-elevation, perched springs are expected within the portions of the Mine Permit Area where the pillars are not pulled or where the overburden is greater than about ~~350 to 400~~ 700 feet. However, in the remaining areas, as has been documented, subsidence can and does extend to the surface thereby altering the recharge-runoff characteristics of the area. Perched aquifers in these zones may be partially or wholly drained. This may increase the recharge to the regional aquifer, increase the water made in the mines, and/or change the point of discharge of a spring. It is believed that some evidence that this is occurring has been brought to light as a result of the 1990 seep and spring inventory discussed in the recently submitted mine permit renewal application. Over the period of time between the 1979 and 1990 seep and spring surveys it has been noted that some springs have dried up while others have appeared. Continued seep and spring inventories as well as spring depletion analyses will aid in documenting this phenomenon. It is expected that the shale and clay layers which exist within the Blackhawk formation will have a tendency to seal cracks that develop, thus reducing the long-term hydrologic impacts of subsidence.

Subsidence impacts on perched springs within the Mine Permit Area are not expected to reduce significantly base flows in local perennial streams in the area because of 1) the large number of the springs that are found (all of which are not affected similarly), and 2) because of the relatively small flow rates characteristic of high elevation perched springs.

Springs located within Boardinghouse Canyon provide an ideal example of the relatively low flow rates typical of high elevation perched springs and the relative impact they have on base flow. During the early summer of 1979, 13 springs with a combined flow of approximately 0.09 cfs (39 gpm) were identified within the Boardinghouse Canyon drainage area. These 13 springs did not include those large developed springs located near the canyon mouth. Records for the years 1980 through 1983 show that the average June flow within Boardinghouse Creek (above the large springs near the canyon mouth) was about 6.2 cfs. A comparison of flows from the 13 springs and Boardinghouse Canyon clearly indicates that flow from the high perched springs contribute only a small portion (1.4%) of the total base streamflow. It is anticipated that similar analyses could be performed on other local drainages should it be desired. However, such analyses are not included herein, and if desired, are left to the interested party to perform.

A comparison between high springs and local streamflows for the fall period shows that spring flow contributions are still minor with an estimated flow contribution in the 5% range. The 5% estimate is based upon recorded Boardinghouse Creek flows for the August period of 1.5 cfs and the assumption that high elevation spring flows remain at approximately 0.09 cfs. In reality, spring flows will decrease as the year progresses as will the estimate of contribution. The purpose of this example is to illustrate that even with an unrealistic worst case, drying up small perched springs will not be expected to decrease base flows of the perennial streams significantly.

When subsidence results in the draining of the small perched aquifers into the mines, the drained water will either 1) aid in recharging the regional aquifer and thus eventually result in an increased discharge from the aquifer at some location, or 2) will increase the amount of water that will be discharged from the mines by way of Whisky Creek into Eccles Creek. Surface runoff from small upstream watershed areas will also be captured by subsided areas and contribute to the discharges mentioned.

Subsidence has the potential for increasing the discharge of suspended sediment in adjacent streams due to the disturbance of local geology (by potential denuding or by softening of the soil structure). As a result, subsided areas may tend to erode more than unsubsided areas until they are weathered and revegetated. Subsidence is not anticipated in streambeds or perennial streams, since attempts will be made to protect them from subsidence by limiting adjacent coal mining activities.

Subsidence may also impact water quality in local streams. Snowmelt and surface runoff from rainstorms is typically of very good quality as is spring discharge. For example, average concentrations of total dissolved solids (TDS) for spring discharges noted in Section R614-301-700

of the mine permit are generally in the range of approximately 200 to 400 mg/l. It is anticipated that the portion of runoff that is intercepted by subsidence cracks will develop increased concentrations of some water quality parameters (such as TDS). Because the amount of water being potentially captured by subsided areas will be relatively small in comparison with the overall volume of ground water within the Mine Permit Area, it is believed that the overall impact to surface water quality will be minimal.

An additional effect of subsidence which was just alluded to would be the potential for flow from springs unaffected by subsidence to flow into a subsided area. In such cases the springs will still provide a water supply for wildlife and vegetation above the subsided areas.

Prevention of Subsidence

As stated earlier, subsidence is expected to have hydrologic impacts in areas where pillars are pulled from mine workings and the overburden is less than approximately ~~350 to 400~~ 700 feet thick. Perennial streams ~~(i.e. South Fork of Eccles Creek, Whisky Creek, Boardinghouse Creek, Finn Creek, and Long Creek)~~ will be protected from subsidence through the practice of leaving pillars beneath the perennial portions of these streams. Pillars will not be pulled where any perennial stream is located within the area included within the angle of draw of the mines. The currently proposed angle of draw for these buffer zones is 35 degrees from vertical. However, the angle of draw in the Blackhawk Formation is likely considerable less than 35 degrees. When documentation of the actual angle of draw can be obtained, a request will be made to reduce the size of the buffer zones accordingly.

Monitoring Plan

The subsidence monitoring plan for the Belina mine includes the continued annual pedestrian survey for all ground surfaces overlying mined areas as well as the transit survey of critical areas. Each year, the land surface located above, and adjacent to mined areas (where the mining method employed includes pillar and full seam extraction methods) will be thoroughly walked. Coverage of the area will be obtained by inspectors which will traverse the area in horizontal sweeps, keeping a uniform distance between them. When a preselected area is traversed horizontally in one direction, the inspection team will drop perpendicular to the contour to a new area, and then begin a new horizontal sweep in the opposite direction. This back and forth method of inspection will be continued until the area has been traversed. Using this method, new subsidence features, or changes in previous features will be noted annually. As part of this effort, numbered markers have been placed on trees and vegetation adjacent to areas affected by subsidence as shown on Map R614-301-728.100a. Where possible, these

numbered markers have been installed so that specific changes in subsidence can more accurately be documented and monitored from year to year.

Two detailed transit surveys have also been conducted of the area overlying the East Mains adjacent to Whisky Creek. Data from these surveys, completed in October of 1983 and in August of 1990 are shown on Map R614-301-728.100b. From the map it is seen that survey lines set up for this area of the mine consists of three north-south trending cross sections with survey data points taken at 50 foot intervals.

Additional survey data will be collected during the summer of 1991 parallel to local area streams and canyon bottoms within the permit area as shown on Map R614-301-728.100b. Note that the areas proposed to be surveyed during 1991 include the northern sections of the mine and that survey stationing will be placed along the hillside out of the channel or canyon bottom. It is important to protect survey stationing from disturbances which might occur through stream or channel flows. Survey stationing will consist of rebar stations located at uneven intervals based upon local topography.

As mining continues within southern sections of the mine, additional stream or canyon survey data will be collected at the proposed locations shown on Map R614-301-728.100b. As with other stream or canyon surveys, these rebar survey stations will be field fit near the canyon bottom to protect them against disturbance from channel runoff. The timing for installation of these southern stations at this point is uncertain, however they are not planned to be installed until future mining progresses into an adjacent region which approaches an angle of draw related to subsidence.

Monitoring Updates

Subsidence Map R614-301-728.100a will be updated annually to document potential subsidence areas above the Belina Mines as found during the pedestrian survey. Updated versions of this map along with a brief letter report describing the observed subsidence effects will be submitted annually to the Utah Division of Oil, Gas, and Mining. At a later date, aerial photogrammetric surveys may also be initiated as an aid in determining and monitoring the effects of subsidence. Before such surveys are attempted however, the problems of accuracy noted historically must be resolved by those capable of providing the service.

Survey updates on cross sections shown on Map R614-301-728.100b will be completed following two criteria. The first criteria will based upon evidence of subsidence found during the annual pedestrian surveys. When new visual evidences are noted in land surface, a transit survey will

be taken of the area affected to document the degree of local area disturbance. If no survey is documented within the five year permit term, then a second criteria will be followed in that a transit survey will be made for inclusion in the five year permit term renewal. Map R614-301-728.100b will be updated annually and submitted to the Division along with Map R614-301-728.100a when additional pertinent survey data is obtained subsequent to a previous submission.

APPENDIX 724.700

AVF

CONSULTANTS/ENGINEERS
HANSEN ALLEN & LUCE INC
SALT LAKE CITY, UTAH

May 11, 1990

Steve Tanner
Valley Camp of Utah
Scofield Route
Helper, Utah 84526

Dear Steve,

This letter is to document the investigations and discussions relating to our visit on May 8, 1990 at your company's mining site.

I believe the alluvial valley floor which is in question does not start until the canyon fans out just south of Scofield Reservoir which is approximately 0.5 miles north of your operation. The mining activity site is located within the steep walled canyon and is drained by the narrowly defined Mud Creek.

We also looked at the 3 ponds (001A, 002A, and 003A) and it appears they are properly maintained and designed so as to intercept the sediment and pass the cleaner water (when it runs and in most cases talking with you and David Hansen of Hansen, Allen, and Luce Inc., they normally evaporate before flowing through) before re-entering Mud Creek). In fact, considering the periodic testing of the water quality through Mr. Hansen's office, there hasn't been any noticeable amounts of anything varying from the norm.

If I can be of further assistance, please feel free to contact me or the SCS office in Price, Utah.

Sincerely,

Richard A. Foster

Richard A. Foster, CPSS
Soil Scientist
Soil Conservation Service
475 W. 100 N.
Vernal, Utah 84078
801-789-2100

c: Jan Anderson, District Conservationist, SCS, Price, UT
David Hansen, Ph.D., Midvale, UT

USDA SOIL CONSERVATION SERVICE

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United States Department of the Interior

OFFICE OF SURFACE MINING
Reclamation and Enforcement
WASHINGTON, D.C. 20240

MAY 2 4 1984

MEMORANDUM

To: Assistant Secretary for Land and Minerals Management

From: ACTING Director, Office of Surface Mining

Subject: Recommendation for Approval of the Belina Mines Complex Mining Plan, Valley Camp of Utah, Inc., Carbon and Emery Counties, Utah, Federal Leases, U-020305, U-044076 and U-017354

I am prepared to approve a permit for the Belina Mines Complex pursuant to the Surface Mining Control and Reclamation Act (SMCRA) and subject to approval of the mining plan. My decision to approve the Valley Camp of Utah Inc. permit is based on: (1) the applicant's complete permit application, (2) our permit conditions, (3) public participation, (4) review of the application by the Office of Surface Mining (OSM) and by the State as required by the approved Utah State program, and (5) compliance with the National Environmental Policy Act.

The Secretary may approve a mining plan for Federal lands under 30 U.S.C. 207(c) and 1273(c). The proposed operation is in compliance with all applicable laws and regulations.

Under Section 522(e)(2) of SMCRA, surface coal mining operations may be permitted in a National Forest if the Secretary finds that there are no significant recreational, timber, economic or other values which may be incompatible with such surface mining operations and if surface operations are incident to an underground coal mine. Based on the concurrence of the Forest Supervisor, Manti-LaSal National Forest, I recommend the Belina Mines Complex mining plan updated through March 9, 1984, be approved and the compatibility finding be made.

Approval:

I hereby find that the surface operations and the impacts of the Belina Mines Complex to be located on Federal lands in the Manti-LaSal National Forest are not incompatible with significant recreational, timber, economic or other

values of the National Forest and surface operations and impacts are incident to an underground coal mine.

I approve this proposed mining plan:

Assistant Secretary for Land and Minerals Management

5/29/84
Date

United States Department of the Interior
OFFICE OF SURFACE MINING
Reclamation and Enforcement
BROOKS TOWERS
1020 15TH STREET
DENVER, COLORADO 80202

MAY 8 1984

MEMORANDUM

TO: Director, Office of Surface Mining

FROM: Allen D. Klein, Administrator, Western Technical Center

SUBJECT: Recommendation for Approval of Valley Camp of Utah, Inc. Belina Mines Complex Mining Plan and Permit, Carbon and Emery Counties, Utah, Federal Leases: U-020305, U-044076, and U-017354

I. Recommendation

I recommend approval with conditions of the Valley Camp of Utah, Inc. Belina Mines Complex permit for an underground mining operation. The Belina Mines Complex includes the currently active Belina No. 1 and No. 2 mines and the loadout facilities at the Utah No. 2 mine. No mining is being permitted at the Utah No. 2 mine. In addition, the once-proposed conveyor associated with these mines has also been dropped from this permitting action. The mining plan and permit, excluding the Lower O'Conner Seam, were approved under the Federal lands and State interim programs. My recommendation is based on the technical analysis and environmental assessment of the complete application.

The applicant has proposed to continue underground mining on Federal coal leases U-020305, U-044076 and U-017354, during the five-year permit, and later to develop additional portions of Federal coal lease U-020305, U-044076 and U-017354 as well as U-47974, U-47975, and U-067498 and private fee coal and State coal during the remaining 26-year life-of-mine. The permit with conditions included with this memorandum will be in conformance with the applicable Federal regulations, the Utah State Program, the cooperative agreement and the Mineral Leasing Act, as amended. I also recommend that you advise the Assistant Secretary, Land and Minerals Management, under 30 CFR 746.14 that the Valley Camp of Utah, Inc. Belina Mines Complex mining plan is ready for approval. I concur that a performance bond in the amount of $1,521,000, which includes the cost of haulroad reclamation is adequate.

The Utah Division of Oil, Gas and Mining (UDOGM) and the Office of Surface Mining (OSM) identified elements of the applicant's proposal which require conditions to comply with State and Federal law. The State permit ACT 007 and ACT 001 and conditions are incorporated into the proposed Federal permit UT-0049 and UT-0013. The State regulatory authority will issue this permit concurrently with the Federal permit.

My recommendation for approval is based on the complete mining plan and permit application, updated to March 9, 1984. I have determined that this action will not have a significant impact on the human environment.

II. Background

The Belina Mines Complex is located in Carbon and Emery Counties, Utah, three miles southwest of Scofield and twenty miles northwest of Price, Utah. The existing permit area contains 2,428 acres of which 969 acres and 1,459 acres, are Federal and private surface, respectively. The estimated life-of-mine operation contains 10,094 surface acres of which 1,618 acres, 7,517 acres, and 959 acres are Federal, private, and State surface, respectively. The existing permit area contains 969 acres, 293 acres, and 571 acres of Federal, Carbon County and private coal, respectively. The proposed mine plan approval area consists of 1,378 acres of Federal coal. The majority of the operations will utilize room-and-pillar mining methods. Two coal seams will be mined to yield a production rate of 1.93 million tons per year. All surface facility operations are scheduled to cease around the year 2010.

In a letter dated March 9, 1984, to OSM, Valley Camp requested an extension of the present five year permit boundary, which would extend mining in Federal lease U-17354 to the southern boundary line of Section 36, and in the southeast corner of Section 35, Federal lease U-044076. (See correspondence section) This extension of existing permit boundary increases the SMCRA permit area from 2,428 surface acres to a total of 2,837 surface acres. Of this 2,837 acres, 1,378 acres and 1,459 acres are Federal and private, respectively. The extension would increase the acreage of coal within the SMCRA permit area from 1,833 acres to 2,242 acres. Of this 2,242 acres, 1,387 acres, 293 acres, and 571 acres are Federal, county and privately owned coal, respectively.

The applicant requested this extension for the purpose of confirming newly acquired geologic seismic data. This tentative geologic information indicated that in this area, additional fault(s) up to 350 feet in displacement and another intrusive dike are present. Valley Camp is concerned about the location of the faulting and the dike and how it may interfere with the present layout of the mine.

In order to effectively plan for the continuation of the Belina mine development, Valley Camp requested to extend development of their South Main Entries through, or to (as the case may be), the faulting and dike. OSM has considered the hydrological and environmental implications of the requested extension. The CHIA considered all anticipated mining, which included the area of the requested extension. Since this area has already been included in the assessment of the cumulative hydrologic impacts, and faulting and intrusives have been considered on the whole, these potential impacts have been addressed. The surface water monitoring program has been revised to require an additional station in Finn Canyon (Condition No.2). The development of main entries into this area will provide additional confirmation on the hydrogeology as required by Conditions No. 3 and No. 4 (see TA pp. 26 and 27).

Several issues raised during the permit review related to the fact that operations at the Belina Mine Complex started prior to the passage of SMCRA. Among the more important of these issues were: (1) the placement of fill in Whiskey Gulch, (2) the absence of salvaged topsoil material around the Belina and Utah #2 portal areas, and (3) postmining reclamation of the Belina haul road.

OSM and UDOGM determined that Whiskey Gulch is an intermittent stream that most probably contains a biological community (see p 16 of the TA) and, therefore, that the buffer zone requirements of UMC 817.57 were applicable. The Belina portals pad sets on a fill over Whiskey Gulch, and most of the Belina haul road is within 100 feet of the stream. The regulatory authority may authorize such activities within the buffer zone if they find that temporary and permanent stream channel diversions will comply with UMC 817.41 through 817.44 and that there will be no degradation of water quantity or quality.

We find that temporary and permanent diversions are already in compliance with UMC 817.41 through 817.44 (see TA, page 18), and analysis of the surface water monitoring data confirmed that there is no reduction in water quantity in Whiskey Gulch. The CHIA report, however, determined that during construction and early use of the road and pad there was degradation of water quality due to increases in total suspended solids (TSS). The CHIA report also found that these increases in TSS concentration were not at the level to cause material damage.

Degradation of the water quality due to increases in TSS have been reduced since the construction of the road and pad because the area has stabilized and the available material has been flushed away. Also, sediment-control measures have been implemented by Valley Camp. Valley Camp continues to provide extra control measures such as recent paving of the haul road and building of a mine-water discharge pond. TSS levels should continue to decrease over time, but they are likely to remain above levels found in undisturbed areas.

Most of the water-quality impacts associated with the Belina haul road and pad have already occurred. Levels of degradation have continued to decrease since the road and pad were constructed. Reconstruction of the road and pad outside of the Whiskey Gulch buffer zone would not be prudent for the following reasons: (1) construction of the road and pad would essentially cause the mine to close since there are no feasible alternative access routes to the portal area; (2) relocation of the pad would require closure and relocation of the Belina No. 2 portal and truck loadout facilities, creating additional disturbance; and (3) relocation of the road and pad would create a new wave of sediment (3-10 years) into Whiskey Gulch. Based on our analysis of the lack of environmental benefits to be gained from removing these structures out of the buffer zone, our recommendation is to authorize their continued existence in their present location (see EA p. 7 and TA p. 16).

On April 20, 1984, OSM was informed that two slides had occurred on April 18, 1984, on the downslope of the Belina haul road. One slide was 40' wide, the other measured 125' wide. According to UDOGM, the failure occurred on a natural slope below the side-cast material used to construct the Belina haul road. The larger slide pushed unconsolidated mud and snow into Eccles Creek; however, the stream was not blocked.

A field inspection of the slide was conducted by UDOGM on April 19, 1984. The Utah Division of Wildlife Resources (DWR) had been contacted and was working with the applicant to design a permanent diversion, approximately 550' in length, around the toe of the slide. Construction had been initiated on April 19. This action was deemed necessary by the state agencies due to the continued failure of the slope during the spring runoff season. According to UDOGM, this portion of Eccles Creek had been previously modified when improvements to the Eccles Creek road were made to access the Coastal State Energy Company's Skyline Mine, located west of the Belina Mines Complex. The proposed diversion, therefore, would relocate the stream to its approximate original location, i.e., away from the toe of the slope.

The UDOGM is treating the diversion and slope stabilization project as an emergency remedial action and sent a letter to the applicant on April 25, 1984 stating the requirements for compliance. These requirements include the submittal of as-built designs demonstrating that the permanent diversion construction meets the requirements of UMC 817.44. A reclamation plan must also be submitted addressing the requirements of UMC 817.111-.116. These plans are to be submitted by the applicant to UDOGM on May 28, 1984.

The Acting Regional Solicitor, in his April 11, 1984 comments on the Belina permit decision document, identified problems with the existing haul road being within the 100' buffer zone of Whiskey Gulch, a tributary to Eccles Creek. The solicitor's main concern was

that the haul road creates impacts to the stream and riparian area, i.e., the road may potentially restrict movement of big game animals. The solicitor has advocated in meetings with the Western Technical Center staff that the road be removed and relocated out of the buffer zone. Relocation of the road would not reduce the potential for slides into Eccles Creek. The slide area is a natural slope and the primary reason for its failure is the unusually high snowfall level saturating the soils and the erosion of the slope's toe. The haul road itself is stable and does not show any signs of failure. The diversion of Eccles Creek will alleviate the problem of continued erosion of the slope's toe, thereby increasing slope stability. The technical analysis (p. 16) has found that relocation of the road would create new impacts in an undisturbed area with very little environmental benefit to be gained.

Because of the limited topsoil salvage that occurred prior to SMCRA, the applicant has proposed that substitute topsoil materials be utilized for reclamation by taking material from the pads in the Belina portal and from the Utah No. 2 loadout and yard areas. The volume of substitute material from the Belina portals source indicates substitute topsoil material is available in an amount sufficient to spread at least six inches over disturbed areas yet to be reclaimed within the Belina portals area. This source of substitute topsoil will also serve as a source of substitute topsoil material for the reclamation of the haul road. The volume for the Utah No. 2 loadout and yard area source indicates substitute topsoil material is available in an amount sufficient to spread approximately six inches over disturbed areas yet to be reclaimed within the Utah No. 2 loadout and yard area.

An evaluation of the physical and chemical data developed for both sources of substitute topsoil indicates both materials are capable of supporting plant growth. This determination was based on the review of physiochemical and productivity data for soils described by the Soil Conservation Service (SCS) which occur in areas adjacent to the Belina Mines Complex. To substantiate this evaluation, OSM is requiring that the applicant design and conduct a greenhouse study or field trials of the substitute topsoil material (see Condition No. 4).

The applicant originally proposed to leave its Belina haul road as an alternative postmining land use. Valley Camp, however, was unable to obtain landowner concurrence to maintain the road (UMC 817.156); hence, OSM determined that the road must be reclaimed in a manner consistent with Utah's performance standards (UMC 817.156). OSM has thus attached a permit Condition No. 10 that requires the applicant to submit plans for the reclamation of the Belina haul road. To ensure that the haul road is reclaimed, OSM and UDOGM have set bond on that portion of the permit area (see TA p. 41) amounting to $622,000.

The determination of probable hydrologic consequences and the CHIA for the Belina Complex relies heavily on information concerning the occurrence of ground water in other mines in the Mud Creek area. Furthermore, during the data search for the CHIA it was apparent that most of the information available concerning ground-water inflow to mines was only available from personal communications with individuals that have worked extensively in the mines. Ground-water inflow information is considered important to document mining impacts on ground-water inflow to the Belina mines and that information would also document if a significant water-bearing zone had been encountered that may require some mitigating measure. In order for the PAP to be in compliance with UMC 817.52, OSM required that Valley Camp implement an in-mine ground water monitoring program (see Condition No. 4).

While no public hearings have been held specifically for Valley Camp's permanent program application, recent hearings have been held regarding coal development in central Utah of which expansion of the Belina Complex is a part. These hearings were held in order to receive public input for the following documents:

> Draft Environmental Impact Statement: Uinta - Southwestern Utah Coal Region, Round II Coal Leases," 1983
>
> Final Environmental Statement: Development of Coal Resources in Central Utah," 1979, USGS
>
> Land Management Plan: Ferron-Price Planning Unit, Manti-La Sal National Forest," 1979, USFS

The Belina Mines Complex permit application was reviewed by OSM and UDOGM using the approved Utah state program and the Federal Lands Program (30 CFR Chapter VII, Subchapter D). The Mineral Leasing Act portion of the plan was also reviewed for compliance with the applicable portion of 30 CFR Part 211 (i.e., requirements and responsibilities of the Minerals Management Service). The technical analysis and environmental assessment for this mine application was prepared by OSM. These documents, other documents prepared by OSM and UDOGM, the company's application, and other correspondence developed during the completeness and technical reviews are part of OSM's mining plan and permit application file. The UDOGM and OSM jointly developed proposed conditions to assure compliance with State and Federal regulations.

A chronology of events related to this mining plan is enclosed. Valley Camp of Utah, Inc., published the newspaper notice in the Price Sun Advocate from September 28, 1983 to October 19, 1983 and no written comments, objections, or requests for an informal conference were received. Concurrence was provided by BLM, Branch of Solid Minerals on August 23, 1983, February 7, 1984, and March 22, 1984. This approval does not include the recovery of the McKinnon Seam present in the southern part of the mining plan area. Mining of the McKinnon Seam will require that another mining plan be developed to demonstrate that all recoverable coal reserves will be mined. In addition, this approval does not cover the area to the southeast of the permit area (i.e. east of the O'Connor Fault) which will also require separate portals and a separate mine plan (see August 23, 1983 letter from BLM, Gordon Whitney).

The BLM provided a letter dated October 21, 1983, stating that none of the lands to be impacted by the Belina No. 1 and No. 2 mines have been designated as unsuitable under section 522 of SMCRA.

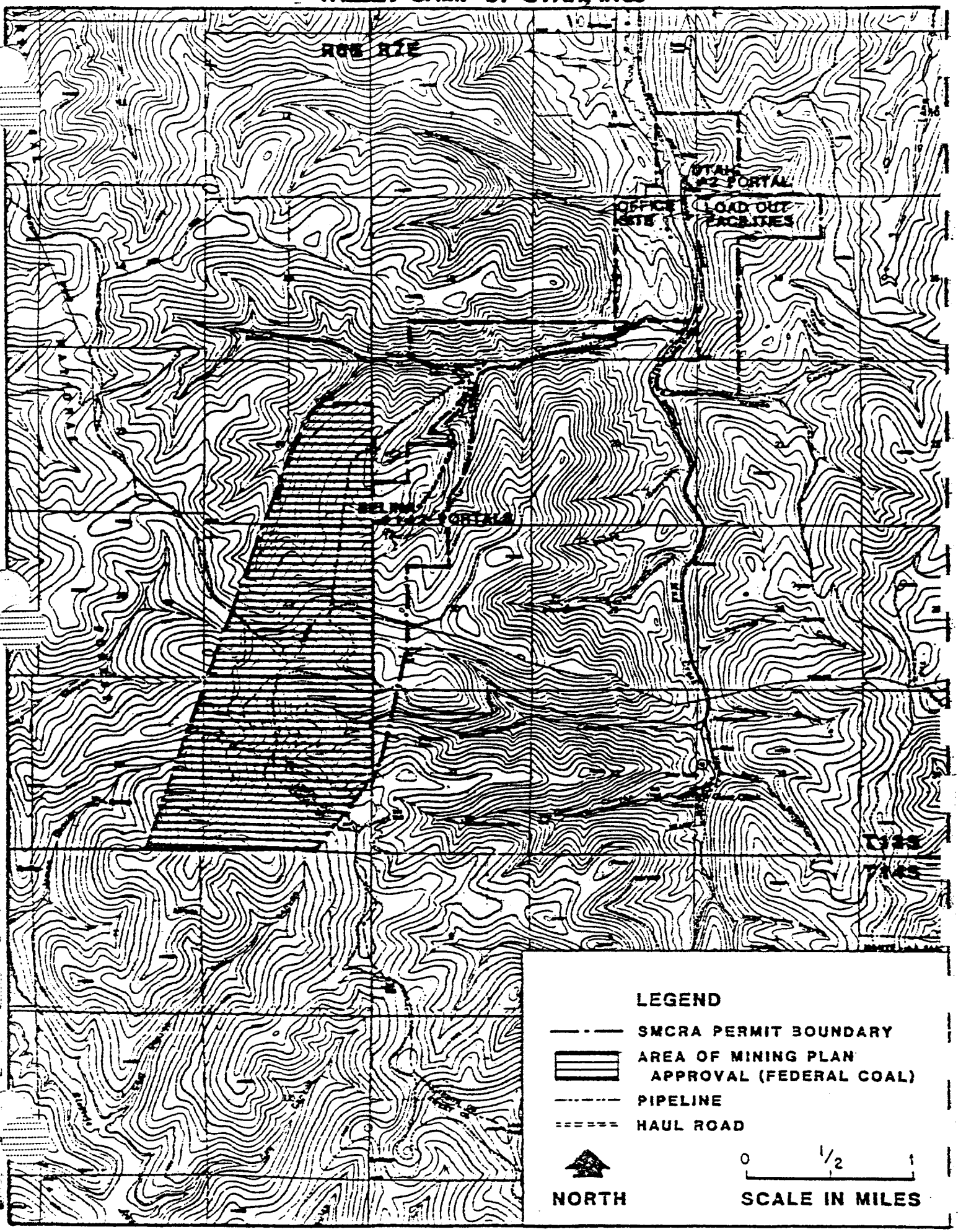
The U. S. Fish and Wildlife Service has provided documentation (see letter from Fred L. Bolwahnn, December 20, 1983) that no threatened or endangered species of animals are known to exist in the area of the Belina No. 1 or No. 2 mines. OSM is currently consulting with the USFWS concerning the need for the applicant to participate in the agency's study program, "Recovery of Endangered Fishes of the Upper Colorado River Basin."

The Forest Service provided a letter (see letter from Reed Christiansen, April 20, 1983) documenting several lease stipulations that must be complied with by Valley Camp of Utah, Inc. These stipulations have been reviewed by OSM, and they do not conflict with any of the aspects of this permit package. The Forest Service also raised concerns about protection of riparian areas and the potential impacts of subsidence. A subsequent letter from the Forest Service (see letter from Reed Christensen, December 28, 1983) stated that the previous concerns regarding subsidence and renewable resource lands had been adequately addressed in Volume VI of the updated permit application. The Forest Service concurrence letter was received by OSM on March 12, 1984.

Concurrence from the Utah State Historic Preservation Office (SHPO) was received on February 29, 1984.

Correspondence from the agencies mentioned above did not specifically require permit stipulations (other than the Forest Service lease stipulations), as the concerns raised in the letters have been resolved in the permit application package or in the stipulations that are contained as part of this approval. The information in the permit application and mining plan, as well as other information documented in the recommendation package and made available to the applicant, has been reviewed by UDOGM in coordination with the OSM Project Leader.

BELINA COMPLEX
VALLEY CAMP OF UTAH, INC.



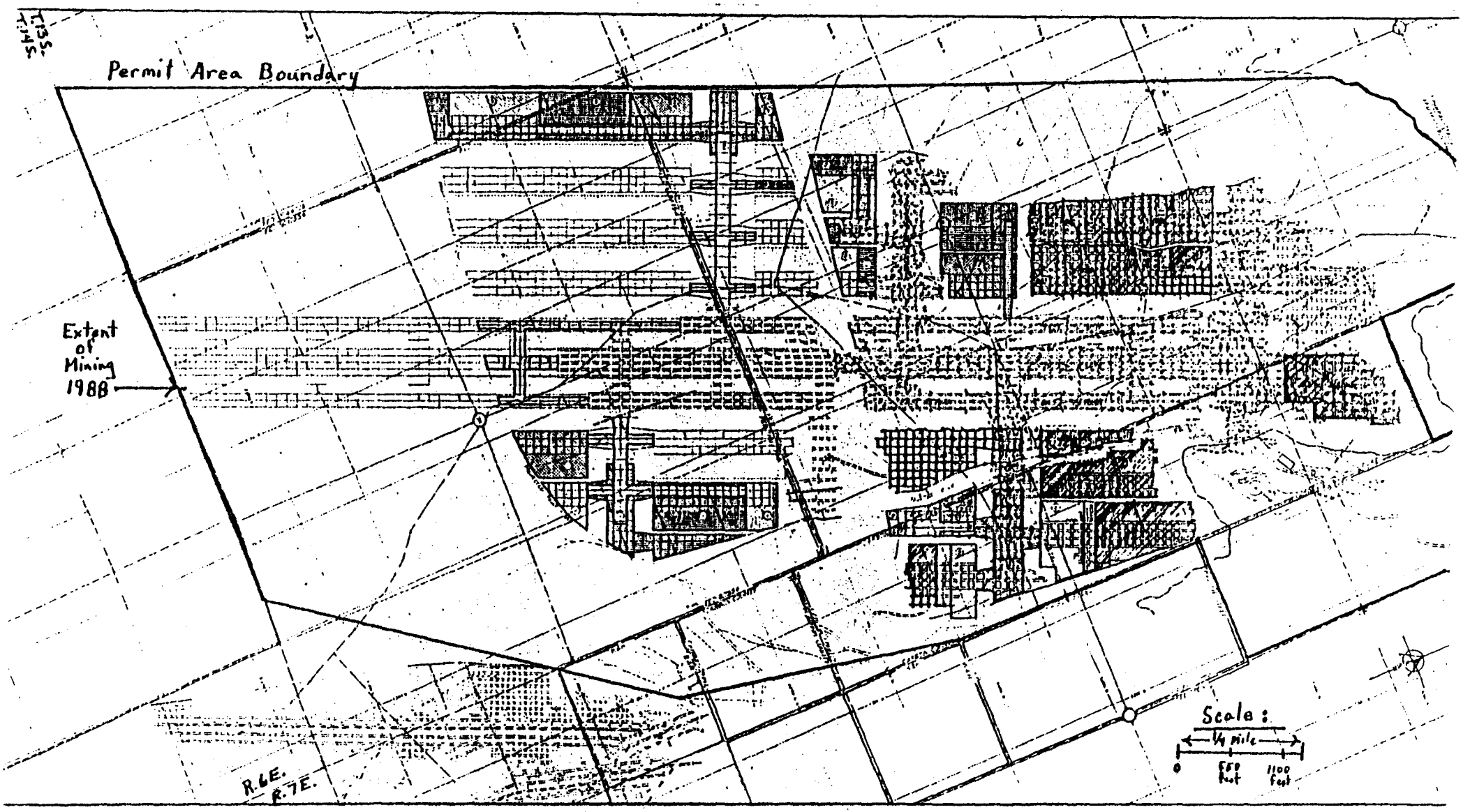
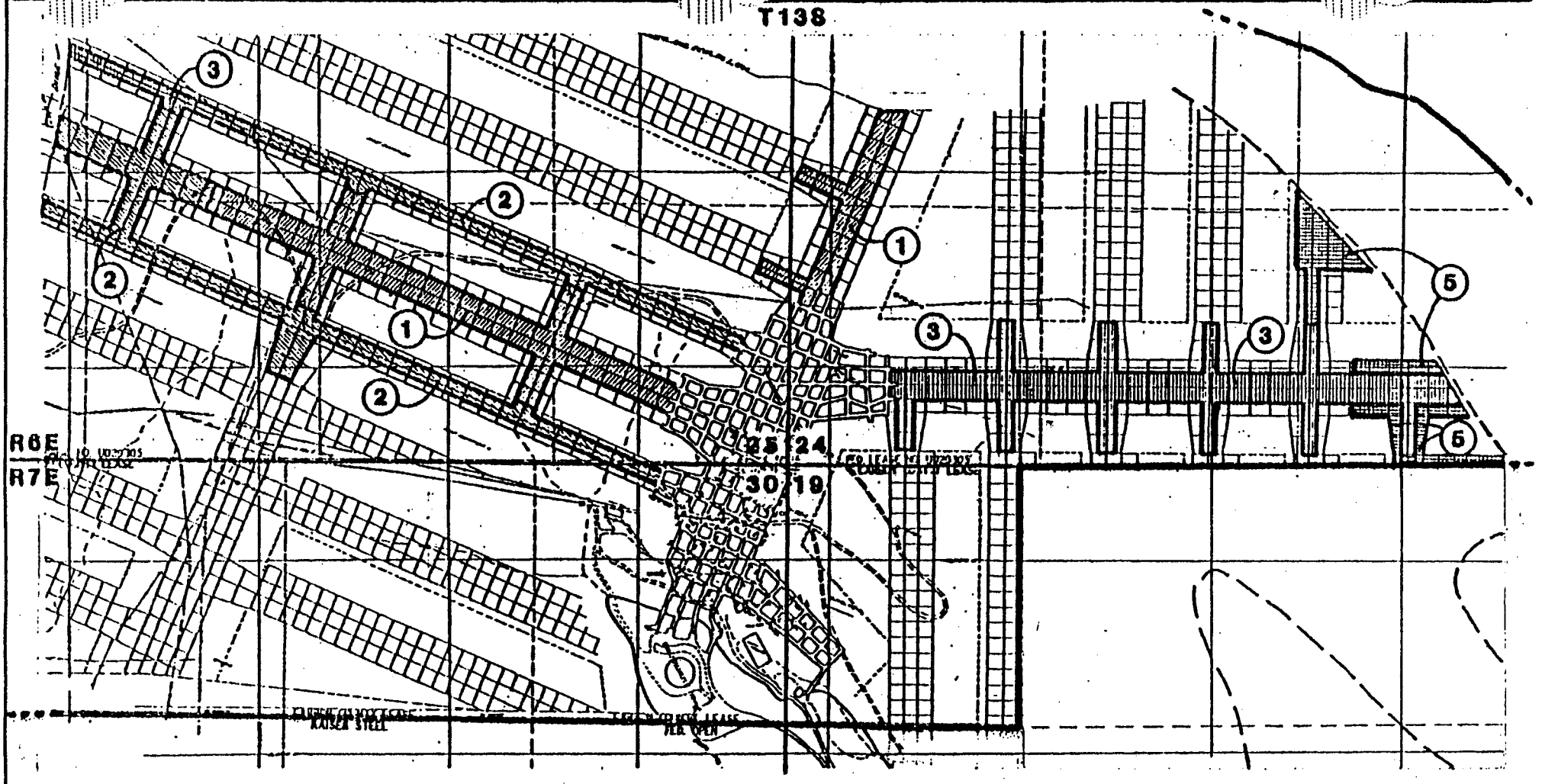

T.13S.
T.14S.
Permit Area Boundary
Extent of Mining 1988
R.6E.
R.7E.
Scale :
¼ mile
0
550 feet
1100 feet

Figure 2



LEGEND

EXTENT OF MINING ALLOWED BY PERMIT

① 1984
② 1985
③ 1986
④ 1987
⑤ 1988

N

0 500 1000

SCALE IN FEET

Figure 3

BELINA NO. 2
5-YEAR
MINING PROJECTION

Figure 4

BELINA COMPLEX
VALLEY CAMP OF UTAH, INC.
POTENTIAL MINING

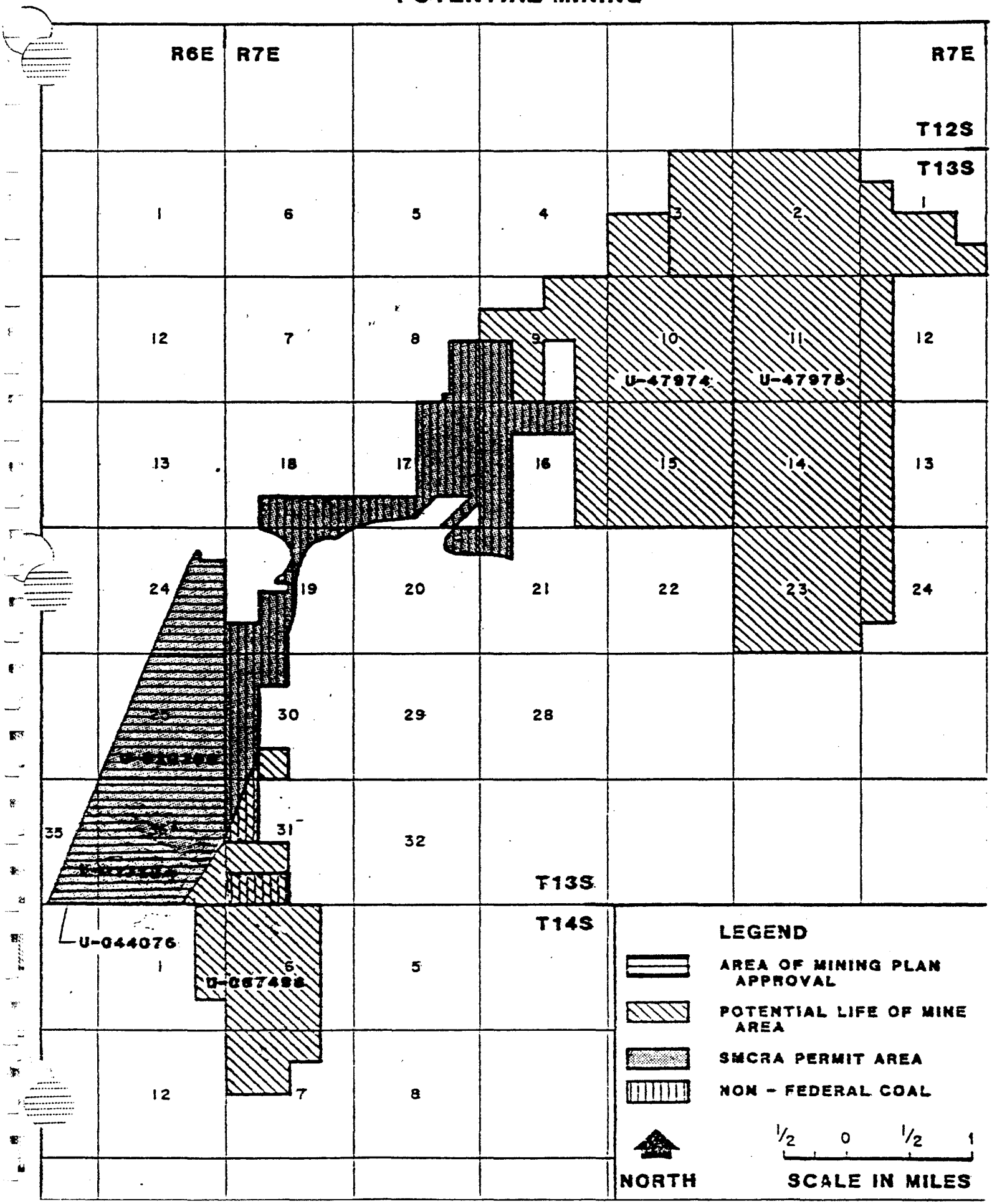
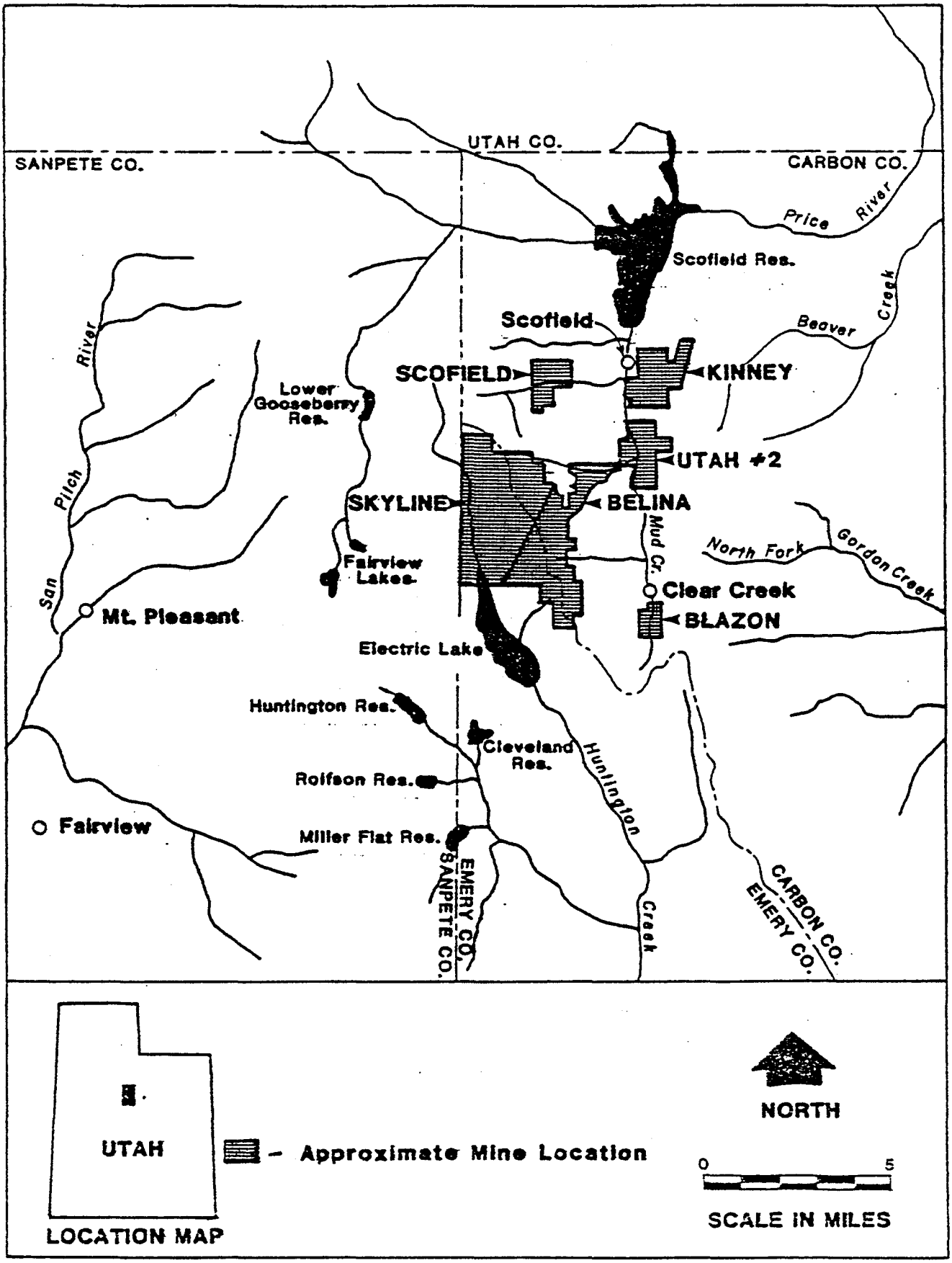
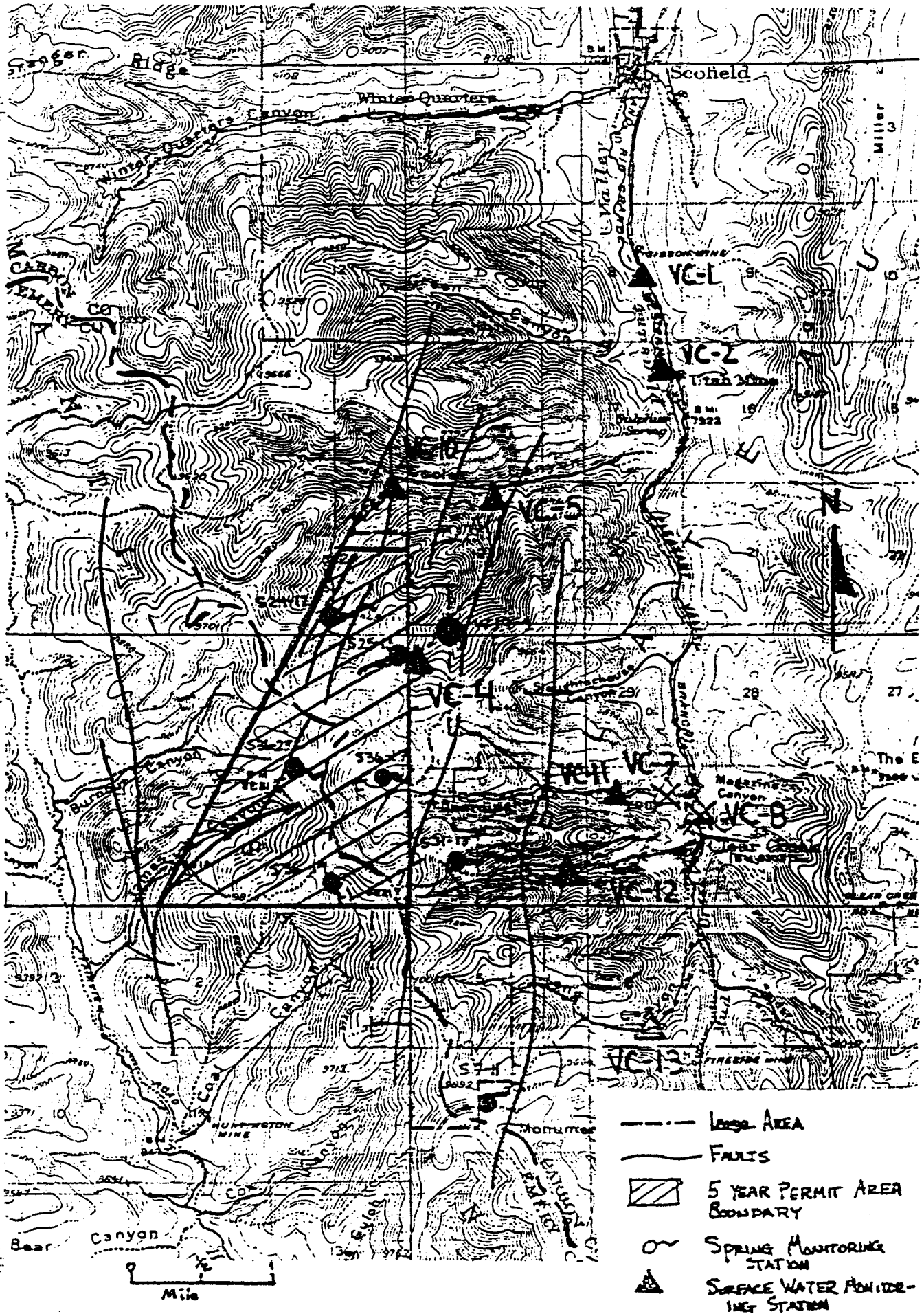


Figure 5



SITE MAP

FIGURE 6



LOCATION OF HYDROLOGY MONITORING STATIONS

CHRONOLOGY OF EVENTS

Valley Camp of Utah, Inc.
Belina No. 1 and No. 2 Mines

Application for Mining Plan and Permit Approval

DATE	EVENT
December 1976:	Belina #1 produces coal.
February 10, 1977:	USGS issues 211 permit for Belina #1 mine covering the existing Belina #1 (Upper O'Conner Seam).
February 9, 1981:	Valley Camp submits a PAP to OSM and UDOGM for the existing Belina #1 and proposed Belina #2 portal areas.
April 30, 1981:	OSM submits to DOGM final ACR comments on the application.
June 12, 1981:	OSM grants Valley Camp a "minor modification" to construct the Belina #2 portal, fans, conveyor belt and to enter county coal in the Lower O'Conner seam. Approval contained stipulation that the company could not enter Federal coal in Belina #2 without permission from OSM/MMS.
September 1, 1981:	OSM concurs with DOGM consolidated ACR comments.
October 20, 1981:	DOGM forwards a draft ACR document to Valley Camp.
December 2, 1981:	Valley Camp requests permission to enter federal coal in the Lower O'Conner (Belina #2) seam.
December 11, 1981:	DOGM invokes "administrative delay" in the review of the Belina permit application.
December 18, 1981:	MMS approves Valley Camp's request to enter federal coal in the Lower O'Conner seam.
December 24, 1981:	DOGM trasmits letter to OSM approving Valley Camp's mining of Federal coal as a "minor modification" to the existing Belina #1 interim mine plan.

DATE	EVENT
January 20, to January 28, 1982:	OSM initiates a series of discussions with MMS requesting that they define a "limit" to mining in the Lower O'Conner Seam.
February 2, 1982:	MMS approves Valley Camp's request to enter Federal coal until July 1, 1983 and delineates mining area on a map.
February 23, 1982:	Valley Camp submits letter to DOGM stating its intent to respond to the ACR by May 31, 1982.
March 25, 1982:	OSM approves Valley Camp's request to enter Federal coal in the Lower O'Conner seam until December 31, 1982, or upon a decision on the mine plan application, whichever comes first. OSM establishes a May 31, 1982 deadline for submittal of a response to the October 1981 ACR.
June 23, 1982:	Valley Camp submits response to October 1981 ACR.
July 6, 1982:	OSM awards contract for reveiw of the application to Envirosphere for $8,828.
July 16, 1982:	Envirosphere submits to OSM an ACR of the application, including Valley Camp's June 23, 1981 submittal.
August 25, 1982:	A revised second-round ACR is formally transmitted to Valley Camp.
November 9, 1982:	Valley Camp responds to the August 25, 1982 second-round ACR.
December 6, 1982:	Valley Camp requests second "minor modification" to continue mining Federal coal in Lower O'Conner Seam beyond the December 31, 1982 deadline.
December 10, 1982:	Envirosphere completes review of latest submittal.
December 22, 1982:	OSM approves applicant's request to continue mining federal coal beyond December 31, 1982 deadline. Authority to mine federal coal is to expire September 16, 1983. All of the remaining responses to deficiencies are to be submitted by March 18, 1983.

DATE	EVENT
February 7, 1983:	DOGM forwards the third-round deficiency letter to Valley Camp.
March 10, 1983:	Valley Camp submits a response to the third-round deficiency letter.
April 4, 1983:	OSM terminates Envirosphere's contract.
May 23, 1983:	DOGM issues preliminary "Determination of Completeness" on PAP. Fourth deficiency letter is forwarded to company.
June 17, 1983:	Valley Camp responds to remaining completeness items.
June 10, 1983:	Contract awarded to Engineering Science for review of mine plan: $82,198.
August 9, 1983:	"Draft Determination of Technical Adequacy (DOA)" submitted to UDOGM identifying outstanding technical deficiencies.
August 22, 1983:	DOGM issues "Determination of Completeness" on Belina Mines Complex PAP.
August 24, 1983:	DOA forwarded to Valley Camp.
September 16, 1983:	Valley Camp submits partial response to DOA.
October 7, 1983:	OSM terminates authority for Valley Camp's continued mining of Federal coal in the Lower O'Conner Seam until the permanent program permit is issued.
October 18, 1983:	Valley Camp presents the remaining materials in response to the August 24, 1983 DOA at a meeting in Denver.
October 14, 1983:	Second DOA sent to Valley Camp regarding the partial response to the August 24, 1983 DOA.
November 16, 1983:	Valley Camp submits their response to the October 14, 1983 DOA.
November 29, 1983:	Third DOA sent to Valley Camp concerning its response to the October 14, 1983 DOA.
December 20, 1983:	Fourth DOA sent to Valley Camp raising all remaining issues that had been revealed by the draft technical analysis.

DATE	EVENT
January 10, 1984:	Valley Camp submits their response to the remaining issues raised in previous DOAs.
February 3, 1984:	Draft Findings, Technical Analysis, Environmental Analysis, and other Secretarial decision document material for the Belina Mine Complex are completed.
March 7, 1984:	Forest Service provides final concurrence on permit application package.
March 9, 1984:	Valley Camp submits a letter to OSM requesting permission to extend the South Main Entries to the southern boundary of Section 36 and in the southeast corner of Section 35, U-017354 and U-044076, respectively.
March 13, 1984:	BLM, Branch of Solid Minerals, concurs with Valley Camp's request to extend mining into Section 35 and 36.
March 22, 1984:	Final concurrence received from BLM on mining plan.
March 23, 1984:	Final findings, technical analysis, environmental analysis and other Secretarial decision document material for the Belina Mine Complex are completed.
March 26, 1984:	Forest Service concurs with Valley Camp's request to extend mining into Section 35 and 36. Environmental assessment and finding of no significant impact on proposed mining plan decision made available to public. OSM submitted final Secretarial decision document to Assistant Secretary for Land & Minerals Management recommending approval of mining plan with conditions. Utah Division of Oil Gas & Mining issued permanent program SMCRA permit with conditions. Assistant Secretary for Land and Minerals Management approved mining plan with conditions.

FINDINGS

Valley Camp of Utah, Inc.
Belina Mines Complex

Application for Mining Plan

I. The State of Utah and the Office of Surface Mining (OSM) have determined that the permit application plan submitted on February 9, 1981, and updated through March 9, 1984, and the permit with conditions are accurate and complete and comply with the requirements of the approved Utah State Program, the Surface Mining Control and Reclamation Act (SMCRA), and the Federal Lands Program [UMC 786.19(a)].

II. OSM has reviewed the permit application and mining plan, and prepared the technical analysis (TA). OSM also prepared the environmental assessment (EA) and based on this has made the following findings:

1. The applicant proposes acceptable practices for the reclamation of disturbed lands. In addition, due to the absence of stockpiled topsoil, the applicant has identified suitable sources (based on chemical and physical analysis) of substitute topsoil in both the Belina portals disturbed area, and the Utah No. 2 loadout and yard disturbed area. The proposed substitute topsoil materials have characteristics of sufficient quality in terms of suitability for use as topsoil comparable to existing soils in the region. The proposed substitute topsoil materials are present in quantities sufficient for spreading at least six inches over disturbed areas at the Belina portals and the reclaimed haulroad and approximately six inches over disturbed areas at the Utah No. 2 loadout and yard area. The quality and quantity of available substitute topsoil indicate reclamation in terms of revegetation is feasible. The OSM staff has determined that reclamation, as required by the Act, can be feasibly accomplished under the mining plan when supplemented by a condition (No. 6 and 7). OSM has determined that reclamation at Belina Mines Complex is technologically and economically feasible under SMCRA Section 522(a)(2)(b).

2. OSM has conducted a cumulative hydrologic impact assessment (CHIA) of all existing and anticipated mining by surface coal mines in the general area. The CHIA included the impacts of all anticipated mining in the cumulative impact area (CIA). It should be noted that the Miller tract lease connected to the Utah No. 2 mine was evaluated in the CHIA; however, this permitting action does not include any mining associated with the Utah No. 2 mine. This is because Valley Camp of Utah, Inc. did not supply the necessary information to permit the Miller tract lease or any coal recovery at the Utah No. 2 mine. The CHIA was written prior to completion of the technical analysis and the final commitments made by the applicant; therefore, issues raised in the CHIA were used by OSM to recommend mitigating measures that evolved during the permit review process. It is concluded from the CHIA and the TA that increases in total dissolved solids, total suspended solids, calcium, magnesium, and phosphate will occur; however, these increases will not cause material damage to the surrounding hydrologic balance. In addition, springs with water rights (other than Valley Camp's) may dry up, increased stream flow from mine discharges will occur in Eccles Creek and Mud Creek, and an unknown number of springs currently used by wildlife will possibly dry up. The applicant provided mitigating measures to prevent damage to the hydrologic balance where potential impacts were considered important to local users or wildlife; therefore, it is concluded that the application has been designed to prevent damage to the hydrologic balance outside the proposed mine plan area, and the PAP is considered in compliance with UMC 786.19(c).

3. After reviewing the description of the proposed permit area, Utah Division of Oil, Gas and Mining and OSM have determined that this area is:

   a. Not included within an area designated unsuitable for surface coal mining operations. [UMC 786.19(d)(1)]

   b. Not within an area under study for designating lands unsuitable for surface coal-mining operations. [UMC 786.19(d)(2)]

   c. Not on any lands subject to the prohibitions or limitations of UMC 761.11(a) (national parks, etc.), 761.11(f) (public buildings, etc.), and 761.11(g) (cemeteries). [UMC 786.19(d)(3)]

   d. Within 100 feet of the outside right-of-way of a public road. [UMC 786.19(d)(4)] The permit boundary includes State Highway 96 and portions of Eccles Canyon Road (a Forest Service Development road). Pursuant to UMC 761.12 Valley Camp has previously carried on mining-related activities on the public roads within its permit area prior to August 3, 1977 and has leases with private surface owners to conduct these activities; [PAP, Volume III, Section 782.15). In accordance with UMC 761.12(d) and UMC 786.11, a public comment period was held from September 28, 1983 to October 19, 1983 and no comments were received. The Carbon County Commissioner's Office provided concurrence on the PAP on September 15, 1983.] Valley Camp has a previous right to these activities and can continue them under this permit.

e. Not within 300 feet of any occupied dwelling. [UMC 786.19(d)(5)]

4. OSM's issuance of a permit and the Secretarial decision on the Mineral Leasing Act plan is in compliance with the National Historic Preservation Act and implementing regulations (36 CFR 800). The State Historic Preservation Officer has concurred with OSM's finding that the mining operations will have no effect upon cultural resources listed or eligible for listing on the National Register of Historic Places, provided that an inventory of the surface over the underground workings is conducted as proposed by the applicant. (See Appendix B of the technical analysis). [UMC 786.19(e); OSM TA; State Historic Preservation Officer concurrence letter, February 29, 1984]

5. The applicant has not submitted surface owner consent letters for areas where the surface and mineral estates have been severed, because UMC 782.15(b) only requires such consent in cases where the surface operations include the surface mining of coal, which will not be part of the Belina operations. The application is, therefore, in compliance with UMC 786.19(f).

6. The applicant does not currently have any outstanding violations of any law, rule or regulations of the United States, or of any State law, rule or regulation, as specified by UMC 786.17(c) (Dave Loff, UDOGM, May 8, 1984).[UMC 786.19(g)]

7. OSM's records confirm that all fees for the Abandoned Mine Reclamation Fund have been paid. [UMC 786.19(h); oral communication with John Sender, OSM Fee Compliance Officer, in Albuquerque Field Office on April 17, 1983]

8. OSM records show that the applicant does not control and has not controlled mining operations with a demonstrated pattern of willful violations of the Act and the Utah State Program of such nature, duration, and with such resulting irreparable damage to the environment as to indicate an intent not to comply with the provisions of the Act.[UMC 786.19(i) 773.15(b)(1); oral communication with Jodie Merriman, OSM Reclamation Specialist, in OSM Albuquerque Field Office on January 17, 1984

9. Underground coal mining and reclamation operations to be performed under the permit will not be inconsistent with other mining in the immediate vicinity of the Belina Mines Complex. [UMC 786.19(i)]

10. The applicant has provided evidence and the Utah Division of Oil, Gas and Mining has found there are no prime farmlands in the permit area and area for life of mine. [UMC 784.19(1)]

11. The alluvial valley floor that was identified in the vicinity of the Belina mines (i.e., in Pleasant Valley below the Utah No. 2 loadout) is not within the proposed permit area and no farming will be interrupted, discontinued, or precluded. In addition no material damage to the water supplied to the alluvial valley floor will occur as a result of mining. [UMC 786.19(1)]

12. The proposed postmining land use of the permit area has been approved by the Utah Division of Oil, Gas and Mining and OSM.

13. Utah Division of Oil, Gas and Mining and OSM have made all specific approvals required by the Act, the approved Utah State Program, and the Federal Lands Program.

14. The Federal action complies with the Endangered Species Act of 1973, the Bald Eagle Protection Act, and the Migratory Bird Act. The Federal action also complies with the laws and regulations protecting fish and wildlife resources. The U. S. Fish and Wildlife Service raised wildlife concerns in correspondence dated September 13, 1982, and April 8, 1983. Sufficient supplemental information has been provided by the applicant to resolve the concerns (see TA Sections 784.21 and 817.97). The wetland monitoring plan proposed by the applicant has been evaluated and supplemented with Condition No. 8; therefore, the Federal action will comply with Executive Order 11990, Protection of Wetlands.

15. Procedures for public participation have complied with requirements of the Act, the approved Utah State Program, the Federal Lands Program, and Council on Environmental Quality regulations (40 CFR Part 1500 et seq.). (30 CFR 740.13(c)(3); Chronology of Events).

16. The applicant has complied with all other requirements of applicable Federal laws; and either has or has applied for permits from the Environmental Protection Agency and Utah State Air and Water Quality agency. [30 CFR 746.13(g); Letters of Concurrence and Clearance and mining plan and permit application package]

17. Approximately 1,378 acres of the permit area are located within the Manti-LaSal National Forest. During leasing, the Forest Service supplied stipulations and during mine plan review, determined that there were no significant recreational, timber, economic, or other values which may be incompatible with such surface mining operations. [Section 522(e)(2)(A), SMCRA; see concurrence letters from U.S. Forest Service, March 7, 1984; March 26, 1984; and Findings of Compatibility]

Administrator
Western Technical Center

Headquarters Reviewing Officer

The PAP is in compliance with UMC 783.13 and UMC 783.15

X - ALLUVIAL VALLEY FLOORS - UMC 785.19 AND 822

Eccles Creek within Eccles Canyon has been determined to not be an alluvial valley floor (AVF). This issue was addressed in the OSM technical analysis for the Skyline Mine. In addition, Whiskey Canyon and Pleasant Valley above the Utah No. 2 facilities were observed by OSM (August 1983) to be too narrow for flood irrigation or subirrigation agricultural activities.

Valley Camp's response (Volume V Apparent Completeness Review) mentions that the upper part of Pleasant Valley has historically not been flood irrigated. The PAP indicates that the lower part of Pleasant Valley (i.e., below the proposed Belina permit area) has historically been flood irrigated and may also be subirrigated near the stream channel. OSM staff evaluated the AVF characteristics of Pleasant Valley during a field trip in early August 1983. The field investigation confirmed the statements in the PAP, that the upper part of Pleasant Valley (near the Utah No. 2 Mine) is narrow and is generally not suitable for flood irrigation development. The lower part of the valley was observed to be flood irrigated. In addition, it appeared that grasses on the valley bottom may be subirrigated.

On the basis of the information presented in Volume V of the PAP and information gained during the field investigation, it is concluded that the surface topography, soils, water quality, and water quantity of lower Pleasant Valley (i.e., below the Utah No. 2 mine) are all suitable for flood irrigation agricultural activities. It is also likely that portions of Pleasant Valley are subirrigated for agriculturally useful species of plants. It is concluded, therefore, that lower Pleasant Valley is an AVF with the essential hydrologic functions of flood irrigation and possibly subirrigation. Conversely, it is concluded that the narrow valleys of Whiskey Canyon, Eccles Canyon, and Pleasant Valley above the Utah No. 2 mine facilities are not AVFs.

The analysis of probable hydrologic consequences and the CHIA report indicate that the base flow component of streamflow from Eccles Creek could be diminished by the Belina mining operations (see CHIA report Chapters 4, 5, and 6). However, during mining the ground water discharges from the mine would maintain flow in Eccles Creek. In addition, the applicant has committed to seal the mine workings (i.e. as determined safe by MSHA, see page 784.14-2 & 3 of the PAP) in the vicinity of the O'Connor Fault to allow accumulation of water to recharge the fractured materials that currently convey water to Eccles Creek. Within the mine, water encountered will be pumped to the vicinity of the O'Connor Fault. In this way, recharge to the O'Connor Fault zone and the corresponding discharge to Eccles Creek will be maintained during mining. Following mining, ground waters will flood the mine workings, after an unknown period, and ground

water flow to Eccles Creek will be maintained. Therefore, it is concluded that the quantity of water in Eccles Creek will be maintained to support the irrigation operations on the Pleasant Valley AVF.

Additional information developed in the CHIA report shows that water quantity will not be impacted either at the Belina mines nor the Utah No. 2 facilities. This study also shows that water quality will be within the agriculture and livestock limits for protection of beneficial uses of water (Utah Division of Health, October 1978). These conditions will prevail not only for the proposed 5-year permit term but also for the life of the mine. Therefore, the proposed operation will not materially damage the water supplied to the Pleasant Valley AVF and the Belina mines will not interrupt, discontinue, or preclude farming on the AVF.

The stream flow monitoring stations on Eccles Creek (see Chapter VIII of this TA) are considered adequate to determine if the Belina mines are affecting the water supply to the irrigation operation on the Pleasant Valley AVF. If water supplies are affected, the applicant has committed additional water rights to replace affected water supplies (see Chapter XI, UMC 783.17 and 817.54 in this TA). Therefore, the PAP is in compliance with respect to UMC 785.19 and 822.

XI - WATER RIGHTS AND REPLACEMENT - UMC 783.17, 817.53, AND 817.54

The applicant has identified and evaluated the probable impact of mining operations on existing ground water and surface water rights (see pages 36 to 42 of Supplement N, Volume VI of the PAP). The applicant also provides an adequate monitoring system for surface and ground water (see Chapter XII, UMC 817.52) to detect if mining-associated water losses will occur. If mining causes an interruption or cessation of flow associated with an existing water right or a perennial spring, the applicant has provided a sequence of measures to be taken to maintain the source of water including: diverting water to the site, hauling water, using Valley Camp's wells, developing a new source, or transferring water rights (see Volume VI, Appendix N, pp. 41-42 of the PAP). The PAP is therefore deemed in compliance with respect to UMC 783.17, 817.53, and 817.54).

XII - PROBABLE HYDROLOGIC CONSEQUENCES OF MINING
CHIA REPORT SUMMARY - See Appendix A of this TA

Surface Water

The applicant has made a determination of the probable hydrologic consequences (PHC) of mining in Section 784.14 (Volume III of the PAP) and in the "Hydrologic Inventory and Baseline Study of the Valley Camp Lease Area, Carbon and Emery Counties, Utah" (Vaughn Hansen Associates, 1980). Valley Camp has provided

APPENDIX 725.100

Well Logs

CONSULTANTS/ENGINEERS
HANSEN ALLEN & LUCE INC
SALT LAKE CITY, UTAH

Form U-5M-1-60

Examined 9/11/75 WO
Recorded: B. C. 10/10/75 T. B. 640

Inspection Sheet

Copied

EXCH 772

REPORT OF WELL DRILLER
STATE OF UTAH

Application No. Exch. 772
Claim No.
Coordinate No. (D-13-7)3 dda

GENERAL STATEMENT: Report of well driller is hereby made and filed with the State Engineer, in accordance with the laws of Utah. (This report shall be filed with the State Engineer within 30 days after the completion or abandonment of the well. Failure to file such reports constitutes a misdemeanor.)

(1) WELL OWNER:
Name Valley Camp Coal Co.
Address Price Utah 84501

(2) LOCATION OF WELL:
County Carbon Ground Water Basin (leave blank)
North/South 1150 feet, East/West 100' feet from SE Corner
of Section 6, T 13 S, R 7 E SLBM (strike out words not needed)

(3) NATURE OF WORK (check):
New Well ☐ Replacement Well ☒ Deepening ☐ Repair ☐ Abandon ☐
If abandonment, describe material and procedure:

(4) NATURE OF USE (check):
Domestic ☒ Industrial ☐ Municipal ☐ Stockwater ☐
Irrigation ☐ Mining ☒ Other ☐ Test Well ☐

(5) TYPE OF CONSTRUCTION (check):
Rotary ☒ Dug ☐ Jetted ☐
Cable ☐ Driven ☐ Bored ☐

(6) CASING SCHEDULE:
Threaded ☐ Welded ☐
8" Diam. from feet to feet Gage .322
" Diam. from feet to feet Gage
" Diam. from feet to feet Gage
New ☒ Reject ☐ Used ☐

(7) PERFORATIONS:
Perforated? Yes ☒ No ☐
Type of perforator used
Size of perforations 1/4" inches by 2" inches
170 perforations from 170 feet to 210 feet
perforations from feet to feet
perforations from feet to feet
perforations from feet to feet
perforations from feet to feet

(8) SCREENS:
Well screen installed? Yes ☐ No ☒
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to
Diam. Slot size Set from ft. to

(9) CONSTRUCTION:
Was well gravel packed? Yes ☒ No ☐ Size of gravel: 1/2"
Gravel placed from 120' feet to 210' feet
Was a surface seal provided? Yes ☒ No ☐
To what depth? 120' feet
Material used in seal: Cement Grout
Did any strata contain unusable water? Yes ☐ No ☒
Type of water: Depth of strata
Method of sealing strata off:

Was surface casing used? Yes ☐ No ☒
Was it cemented in place? Yes ☐ No ☐

(10) WATER LEVELS:
Static level 175 feet below land surface Date
Artesian pressure feet above land surface Date

LOG RECEIVED:
RECEIVED NOV 7 1975 DIVISION OF WATER RIGHTS

(11) FLOWING WELL:
Controlled by (check) Valve ☐
Cap ☐ Plug ☐ No Control ☐
Does well leak around casing? Yes ☐ No ☐

(12) WELL TESTS:
Drawdown is the distance in feet the water level is lowered below static level.
Was a pump test made? Yes ☐ No ☒ If so, by whom?
Yield: gal./min. with feet drawdown after hours
" " " " " " " "
" " " " " " " "
Bailer test gal./min. with feet drawdown after hours
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? No ☒ Yes ☐

(13) WELL LOG:
Diameter of well 12¼" inches
Depth drilled 210' feet. Depth of completed well 210' feet.

NOTE: Place an "X" in the space or combination of spaces needed to designate the material or combination of materials encountered in each depth interval. Under REMARKS make any desirable notes as to occurrence of water and the color, size, nature, etc., of material encountered in each depth interval. Use additional sheet if needed.

DEPTH From	DEPTH To	MATERIAL Clay	Silt	Sand	Gravel	Cobbles	Boulders	Hardpan	Conglomerate	Bedrock	Other	REMARKS

Work started Aug 14, 1975 Completed Sept 9, 1975

(14) PUMP:
Manufacturer's Name Reda
Type: Submersible H. P. 10
Depth to pump or bowles 197' feet

Well Driller's Statement:
This well was drilled under my supervision, and this report is true to the best of my knowledge and belief.

Name W. E. Hoggard Jr. Drilling Cont. (Person, firm, or corporation) (Type or print)
Address P.O. Box 576, Glenwood, Utah
(Signed) (Well Driller)
License No. 315 Date Sept. 20, 1975

USE OTHER SIDE FOR ADDITIONAL REMARKS

1084- Form No. 111- 3-20-52

91-200 ?
91-3900 ? 10265

Copied mv 2-25-54
Exam. & Recorded mv 10-8-53
Exam. for filing mv 10-8-53
Final Copy checked
Indexed mv 2-25-54
Well No. (D-13-7)8dcc-1

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Report No. 10265
Filed Sept. 14 19 53
Rec. By M.V.
Ret'd

Report of Well and Tunnel Driller
STATE OF UTAH

(Separate report shall be filed for each well or tunnel)

GENERAL INFORMATION:

Report of well or tunnel driller is hereby made and filed with the State Engineer, in compliance with Sec. 100-3-22, Utah Code Annotated, 1943. (This report shall be filed with the State Engineer within 30 days after the completion or abandonment of well or tunnel. Failure to file such report constitutes a misdemeanor.)

1. Name and address of ~~person~~, company ~~or corporation having~~ drilling well ~~or tunnel~~ (Strike words not needed)
J. S. Lee & Sons 4091 So. State St., S.L.C., Utah

2. Name and address of owner of well ~~or tunnel~~ (Strike Words not needed) Utah Natural Gas Co.
Provo, Utah

3. Source of supply is in ~~Utah~~ Carbon County; ..... (Leave blank) drainage area; ..... (Leave blank) artesian basin

4. The number of approved application to appropriate water is 25082

5. Location of well ~~or tunnel~~ is situated at a point
N. 450 ft. and E. 500 ft. from S¼ Cor. Sec. 8, T13S, R7E, SLB&M.
(Describe by rectangular co-ordinates or by one course and distance with reference to U. S. Government Survey Corner — Copy description from well owner's approved application)

6. Date on which work on well ~~or tunnel~~ (Strike words not needed) was begun Aug. 8, 1953

7. Date on which work on well ~~or tunnel~~ was completed ~~or abandoned~~ (Strike words not needed) Aug. 30, 1953

8. Maximum quantity of water measured as ~~flowing~~, pumped or ..... (Strike words not needed) on completion of well ~~or tunnel or source of~~; or in gals. per minute 50 Date .....

DETAIL OF COLLECTING WORKS:

9. WELL: It is drilled, ~~dug, flowing or~~ (Strike words not needed) pump well. Temperature of water ..... °F.

(a) Total depth of well is 280 ft. below ground surface.

(b) If flowing well, give water pressure (hydrostatic head) above ground surface ..... ft.

(c) If pump well, give depth from ground surface to water surface before pumping 100 ft.; during pumping 147 ft.

(d) Size and kind of casing 10" (If only partially cased, give details)

(e) Depth to water-bearing stratum 100 ft. (If more than one stratum, give depth to each)

(f) If casing is perforated, give depth from ground surface to perforations .....

(g) Log of well 0 to 7' top soil, 7 to 189 sand clay, 189 to 192 sand stone water, 192 to 201 sandy clay, 201 to 213 shale, 213 to 228 sand stone water, 228 to 233 sandy clay, 233 to 249 shale, 249 to 251 Limestone, 251 to 280 shale

(h) Well was equipped with cap, valve, or ..... (Strike words not needed) to control flow.

(Over)

10. **TUNNEL:** It is timbered, tiled, piped, open, bulkheaded, covered or.....
(Strike words not needed)

(a) Dimensions.....; total length.....; temperature of water.....°F.

(b) Position of water bearing stratum or strata with reference to mouth of tunnel.....

.....

.....

(c) Log of tunnel.....

.....

.....

.....

11. **GENERAL REMARKS:** (Note any general or detailed information not covered above).

STATE OF UTAH,
COUNTY OF Salt Lake } ss.

I, J. G. Lee, being first duly sworn, do hereby certify that I am the driller of the aforesaid well or tunnel who furnished the foregoing statement of facts; that I have read said statement and each and all of the items therein contained are true to the best of my knowledge and belief.

/s/ J.S. Lee & Sons by J.G. Lee
Driller

Subscribed and sworn to before me this 14 day of Sept., 19 53

(SEAL)

/s/ L. C. Monson
Notary Public

My Commission Expires:

July 18, 1956

E 16 11

Form 115—534—12-60

1-30-80

Examined
Recorded: B. C. T. B.
Inspection Sheet
Copied

REPORT OF WELL DRILLER
STATE OF UTAH

Application No. Test Well Letter 1-30
Claim No.
Coordinate No.

GENERAL STATEMENT: Report of well driller is hereby made and filed with the State Engineer, in accordance with the laws of Utah. (This report shall be filed with the State Engineer within 30 days after the completion or abandonment of the well. Failure to file such reports constitutes a misdemeanor.)

(1) WELL OWNER:
Name Valley Camp Coal Co.
Address Clear Creek Utah

(2) LOCATION OF WELL:
County Carbon Ground Water Basin (leave blank)
North/South 50 feet, East/West 1940 feet from SW 1/4 Corner
of Section 19, T. 13 S., R. 7 E SLBM (strike out words not needed)

(3) NATURE OF WORK (check): New Well [X]
Replacement Well ☐ Deepening ☐ Repair ☐ Abandon ☐
If abandonment, describe material and procedure:

(4) NATURE OF USE (check):
Domestic ☐ Industrial [X] Municipal ☐ Stockwater ☐
Irrigation ☐ Mining [X] Other ☐ Test Well ☐

(5) TYPE OF CONSTRUCTION (check):
Rotary [X] Dug ☐ Jetted ☐
Cable ☐ Driven ☐ Bored ☐

(6) CASING SCHEDULE: Threaded [X] Welded ☐
6 5/8" Diam. from +2 feet to 730 feet Gage .025
" Diam. from feet to feet Gage
" Diam. from feet to feet Gage
New [X] Reject ☐ Used ☐

(7) PERFORATIONS: Perforated? Yes ☐ No ☐
Type of perforator used Slots
Size of perforations 1/16 X inches by 12" inches
perforations from 580 feet to 730' feet
perforations from feet to feet
perforations from feet to feet
perforations from feet to feet
perforations from feet to feet

(8) SCREENS: Well screen installed? Yes ☐ No [X]
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to
Diam. Slot size Set from ft. to

(9) CONSTRUCTION:
Was well gravel packed? Yes [X] No ☐ Size of gravel: 3/8"
Gravel placed from 500 feet to 730 feet
Was a surface seal provided? Yes [X] No ☐
To what depth? 300' feet
Material used in seal: Cement
Did any strata contain unusable water? Yes ☐ No [X]
Type of water: Depth of strata
Method of sealing strata off:

Was surface casing used? Yes ☐ No [X]
Was it cemented in place? Yes ☐ No ☐

(10) WATER LEVELS:
Static level 500 feet below land surface Date July 7
Artesian pressure feet above land surface Date

LOG RECEIVED
RECEIVED
JUL 29 1980
WATER RIGHTS

(11) FLOWING WELL:
Controlled by (check) Valve ☐
Cap ☐ Plug ☐ No Control ☐
Does well leak around casing? Yes ☐ No ☐

(12) WELL TESTS: Drawdown is the distance in feet the water level is lowered below static level.
Was a pump test made? Yes [X] No ☐ If so, by whom? Energy Drilling
Yield: 65 gal./min. with Unknown feet drawdown after hours
" " " " " "
" " " " " "
Bailer test gal./min. with feet drawdown after hours
Artesian flow g.p.m. Date
Temperature of water 46° Was a chemical analysis made? No [X] Yes ☐

(13) WELL LOG: Diameter of well 12 1/4" inches
Depth drilled 730 feet. Depth of completed well 730 feet.

NOTE: Place an "X" in the space or combination of spaces needed to designate the material or combination of materials encountered in each depth interval. Under REMARKS make any desirable notes as to occurrence of water and the color, size, nature, etc., of material encountered in each depth interval. Use additional sheet if needed.

DEPTH From	DEPTH To	Clay	Silt	Sand	Gravel	Cobbles	Boulders	Hardpan	Conglomerate	Bedrock	Other	REMARKS
0	7	X										Gray Shale
8	38			X								Lt Gray (SS)
38	43	X										Shale
44	480	X		X								interbedded Shale & SS
												Lost Circulation Drilled Blind From 480 to 730
												Air pressure indicate water @ 540' to 680
												Valley Camp has Electri Log on hole

Work started July 1, 1980 Completed July 17, 1980

(14) PUMP:
Manufacturer's Name Reda
Type: Sub H. P. 30
Depth to pump or bowls 700 feet

Well Driller's Statement:
This well was drilled under my supervision, and this report is true to the best of my knowledge and belief.
Name W. E. Haggard Jr. (Person, firm, or corporation) (Type or print)
Address Box 578 Blanding Utah
(Signed) W. E. Haggard Jr. (Well Driller)
License No. 315 Date July 28, 1980

USE OTHER SIDE FOR ADDITIONAL REMARKS

Form 113–5M–12-60

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41-4174?

Examined
Recorded: B. C. MAR 4 1983
Inspection Sheet
Copied
STATE ENGINEER

REPORT OF WELL DRILLER
STATE OF UTAH

Application No. Scofield Test well
Claim No. #1
Coordinate No.

GENERAL STATEMENT: Report of well driller is hereby made and filed with the State Engineer, in accordance with the laws of Utah. (This report shall be filed with the State Engineer within 30 days after the completion or abandonment of the well. Failure to file such reports constitutes a misdemeanor.)

(1) WELL OWNER:
Name Scofield city
Address Scofield, Ut.

(2) LOCATION OF WELL:
County Carbon Ground Water Basin (leave blank)
~~North~~ South 900 feet, East West 2150 feet from NW Corner of Section 5, T. 13 S, R. 7 E SLBM (strike out words not needed)

(3) NATURE OF WORK (check):
New Well X Replacement Well ☐ Deepening ☐ Repair ☐ Abandon ☐
If abandonment, describe material and procedure:

(4) NATURE OF USE (check):
Domestic ☐ Industrial ☐ Municipal X Stockwater ☐
Irrigation ☐ Mining ☐ Other ☐ Test Well ☐

(5) TYPE OF CONSTRUCTION (check):
Rotary X Dug ☐ Jetted ☐
Cable ☐ Driven ☐ Bored ☐

(6) CASING SCHEDULE:
Threaded PVC ☐ Welded ☐
6" Diam. from 0 feet to 120 feet Gage NWD
" Diam. from feet to feet Gage
" Diam. from feet to feet Gage
New X Reject ☐ Used ☐

(7) PERFORATIONS:
Perforated? Yes ☐ No X
Type of perforator used
Size of perforations inches by inches
perforations from feet to feet
perforations from feet to feet
perforations from feet to feet
perforations from feet to feet
perforations from feet to feet

(8) SCREENS:
Well screen installed? Yes ☐ No ☐
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to
Diam. Slot size Set from ft. to

(9) CONSTRUCTION:
Was well gravel packed? Yes ☐ No X Size of gravel:
Gravel placed from feet to feet
Was a surface seal provided? Yes ☐ No ☐
To what depth? feet
Material used in seal:
Did any strata contain unusable water? Yes ☐ No ☐
Type of water: Depth of strata
Method of sealing strata off:

Was surface casing used? Yes X No ☐
Was it cemented in place? Yes X No ☐

(10) WATER LEVELS:
Static level feet below land surface Date
Artesian pressure feet above land surface Date

LOG RECEIVED
RECEIVED
MAR 07 1983
WATER RIGHTS

(11) FLOWING WELL:
Controlled by (check) Valve ☐
Cap ☐ Plug ☐ No Control ☐
Does well leak around casing? Yes ☐ No ☐

(12) WELL TESTS:
Drawdown is the distance in feet the water level is lowered below static level.
Was a pump test made? Yes ☐ No ☐ If so, by whom?
Yield: gal./min. with feet drawdown after hours
" " " "
" " " "
Bailer test gal./min. with feet drawdown after hours
Arterian flow g.p.m. Date
Temperature of water Was a chemical analysis made? No ☐ Yes ☐

(13) WELL LOG:
Diameter of well 5 5/8 inches
Depth drilled 260 feet. Depth of completed well feet.

NOTE: Place an "X" in the space or combination of spaces needed to designate the material or combination of materials encountered in each depth interval. Under REMARKS make any desirable notes as to occurrence of water and the color, size, nature, etc., of material encountered in each depth interval. Use additional sheet if needed.

DEPTH From	DEPTH To	Clay	Silt	Sand	Gravel	Cobbles	Boulders	Hardpan	Conglomerate	Bedrock	Other	REMARKS
0	20		X									light Brown
20	115			X								yellow - soft conglomerate Formation -
115	120										X	Fine grey Sandy Shale
120	130										X	grey Shale
130	155			X								yellow - soft
155	180			X								grey Sand - some hard Stringer
180	210			X								yellow - with hard Stringers
210	220										X	grey Shale
220	260										X	grey Sandy Shale with hard Stringers

Work started 12-7, 19 82 Completed 12-9, 19 82

(14) PUMP:
Manufacturer's Name
Type: H. P.
Depth to pump or bowles feet

Well Driller's Statement:
This well was drilled under my supervision, and this report is true to the best of my knowledge and belief.

Name Energy Drilling + Dev. Co.
(Person, firm, or corporation) (Type or print)
Address Price, Ut.
(Signed) Curtis Palmer (Well Driller)
License No. 315 Date 12-13-, 19 82

USE OTHER SIDE FOR ADDITIONAL REMARKS

over

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APR 27 1987

EX 2475 9

Form 113—5M—12-60

Examined .....
Recorded: B. C. ..... T. B. .....
Inspection Sheet .....
Copied .....

REPORT OF WELL DRILLER

STATE OF UTAH

WATER RIGHTS PRICE

Application No. EX 2475
Plat No. 41 Area
Coordinate No. .....

GENERAL STATEMENT: Report of well driller is hereby made and filed with the State Engineer, in accordance with the laws of Utah. (This report shall be filed with the State Engineer within 30 days after the completion or abandonment of the well. Failure to file such reports constitutes a misdemeanor.)

(1) WELL OWNER:

Name LDS Church Price Stake
Address 50E N Temple Salt Lake City U

(2) LOCATION OF WELL:

County Carbon Ground Water Basin (leave blank)

1400 feet South, 1305 feet West from NE Corner of Section 17, T 13 N S, R 7 E SLBM (strike out words not needed)

(3) NATURE OF WORK (check):

New Well ☒ Replacement Well ☐ Deepening ☐ Repair ☐ Abandon ☐

If abandonment, describe material and procedure: .....

(4) NATURE OF USE (check):

Domestic ☒ Industrial ☐ Municipal ☐ Stockwater ☐
Irrigation ☐ Mining ☐ Other ☐ Test Well ☐

(5) TYPE OF CONSTRUCTION (check):

Rotary ☐ Dug ☐ Jetted ☐
Cable ☐ Driven ☐ Bored ☐

(6) CASING SCHEDULE:

Threaded ☐ Welded ☒

6 5/8" Diam. from 0 feet to 77 feet Gage .256
4 1/2 I.D. Diam. from 60 feet to 220 feet Gage .258
..... Diam. from ..... feet to ..... feet Gage .....

New ☒ Reject ☐ Used ☐

(7) PERFORATIONS:

Perforated? Yes ☒ No ☐

Type of perforator used Saw
Size of perforations 1/16 inches by 8 inches
93 perforations from 93 feet to 105 feet
131 perforations from 131 feet to 144 feet
126 perforations from 126 feet to 189 feet
..... perforations from ..... feet to ..... feet
..... perforations from ..... feet to ..... feet

(8) SCREENS:

Well screen installed? Yes ☐ No ☒

Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... Set from ..... ft. to .....
Diam. ..... Slot size ..... Set from ..... ft. to .....

(9) CONSTRUCTION:

Was well gravel packed? Yes ☐ No ☒ Size of gravel: .....
Gravel placed from ..... feet to ..... feet
Was a surface seal provided? Yes ☒ No ☐
To what depth? 77 feet
Material used in seal: Cement
Did any strata contain unusable water? Yes ☐ No ☐
Type of water: Sulfur Depth of strata 21
Method of sealing strata off: .....

Was surface casing used? Yes ☒ No ☐
Was it cemented in place? Yes ☒ No ☐

(10) WATER LEVELS:

Static level 18 feet below land surface Date 3-16-87
Artesian pressure ..... feet above land surface Date .....

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LOG RECEIVED
APR 28 1987
WATER RIGHTS
SALT

(11) FLOWING WELL:

Controlled by (check) Valve ☐
Cap ☐ Plug ☐ No Control ☐
Does well leak around casing? Yes ☐ No ☐

(12) WELL TESTS:

Drawdown is the distance in feet the water level is lowered below static level.

Was a pump test made? Yes ☒ No ☐ If so, by whom? Tracy
Yield: 2 Sgpm gal./min. with ..... feet drawdown after 6 hours
" ..... " ..... " ..... "
" ..... " ..... " ..... "
Bailer test ..... gal./min. with ..... feet drawdown after ..... hours
Arterian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? No ☒ Yes ☐

(13) WELL LOG:

Diameter of well 9 7/8-77' 6"-220 inches
Depth drilled 220 feet. Depth of completed well 220 feet.

NOTE: Place an "X" in the space or combination of spaces needed to designate the material or combination of materials encountered in each depth interval. Under REMARKS make any desirable notes as to occurrence of water and the color, size, nature, etc., of material encountered in each depth interval. Use additional sheet if needed.

DEPTH From	DEPTH To	Clay	Silt	Sand	Gravel	Cobbles	Boulders	Hardpan	Conglomerate	Bedrock	Other	REMARKS
0	11	X									X	Large Broken Rock + yellow Clay
11	29			X	X							Red Water 2 gpm
29	40	X										yellow Clay Solid
40	47	X										Grey Solid
47	63									X		Grey Sand Stone
63												47-55 Very Hard
63	70										X	Mud Stone Hard
70	93									X		Grey Sand Stone
93	105									X		White Sand Stone Soft Water 3 gpm
105	128									X		Grey Hard
128	131										X	Clay Stone Hard
131	144									X		Brown + yellow Sand Stone Water 18 gpm
144	153											Clay Stone Hard Coal fragments
153	159									X		Hard Grey Sand Stone
159	176										X	Clay Stone Blue
176	189									X		White Sand Stone 16 gpm
189	206										X	Blue Shale
206	220										X	Blue + grey Shale Some Bad Water

Work started 1-10 19 87 Completed 3-16 19 87

(14) PUMP:

Manufacturer's Name Red Jacket
Type: Sub H. P. 2
Depth to pump or bowles 132 feet

Well Driller's Statement:

This well was drilled under my supervision, and this report is true to the best of my knowledge and belief.

Name Tracy Drilling Co. (Person, firm, or corporation) (Type or print)
Address East Route Monticello, Utah 84535
(Signed) Allan Tracy (Well Driller)
License No. 351 Date 3-16 19 87

USE OTHER SIDE FOR ADDITIONAL REMARKS

RECEIVED

APR 27 1987

WATER RIGHTS
PRICE

Form 113—5M—12-60

Examined .....
Recorded: B. C. ..... T. B. .....
Inspection Sheet .....
Copied .....

REPORT OF WELL DRILLER

STATE OF UTAH

Application No. Ex. 2475
91-Area
Coordinate No. .....

GENERAL STATEMENT: Report of well driller is hereby made and filed with the State Engineer, in accordance with the laws of Utah. (This report shall be filed with the State Engineer within 30 days after the completion or abandonment of the well. Failure to file such reports constitutes a misdemeanor.)

(1) WELL OWNER:

Name LDS Church "Price, Stake"
Address 50 E. North Temple Salt Lake City, Ut. 84150

(2) LOCATION OF WELL:

County Carbon Ground Water Basin (leave blank)

~~North~~ South 1400 feet, ~~East~~ West 1305 feet from NE Corner of Section 17 T. 13 S. R. 7 E SLBM (strike out words not needed)

(3) NATURE OF WORK (check):

New Well [X] Replacement Well [ ] Deepening [ ] Repair [ ] Abandon [ ]

If abandonment, describe material and procedure: .....

(4) NATURE OF USE (check):

Domestic [X] Industrial [ ] Municipal [ ] Stockwater [ ]
Irrigation [ ] Mining [ ] Other [ ] Test Well [ ]

(5) TYPE OF CONSTRUCTION (check):

Rotary [ ] Dug [ ] Jetted [ ]
Cable [ ] Driven [ ] Bored [ ]

(6) CASING SCHEDULE:

Threaded [ ] Welded [ ]

..... " Diam. from ..... feet to ..... feet Gage .....
..... " Diam. from ..... feet to ..... feet Gage .....
..... " Diam. from ..... feet to ..... feet Gage .....

New [ ] Reject [ ] Used [ ]

(7) PERFORATIONS:

Perforated? Yes [ ] No [ ]

Type of perforator used .....
Size of perforations ..... inches by ..... inches
..... perforations from ..... feet to ..... feet
..... perforations from ..... feet to ..... feet
..... perforations from ..... feet to ..... feet
..... perforations from ..... feet to ..... feet
..... perforations from ..... feet to ..... feet

(8) SCREENS:

Well screen installed? Yes [ ] No [ ]

Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... Set from ..... ft. to .....
Diam. ..... Slot size ..... Set from ..... ft. to .....

(9) CONSTRUCTION:

Was well gravel packed? Yes [ ] No [ ] Size of gravel: .....
Gravel placed from ..... feet to ..... feet
Was a surface seal provided? Yes [ ] No [ ]
To what depth? ..... feet
Material used in seal: .....
Did any strata contain unusable water? Yes [ ] No [ ]
Type of water: ..... Depth of strata .....
Method of sealing strata off: .....

Was surface casing used? Yes [ ] No [ ]
Was it cemented in place? Yes [ ] No [ ]

(10) WATER LEVELS:

Static level ..... feet below land surface Date .....
Artesian pressure ..... feet above land surface Date .....

RECEIVED
APR 28 1987
WATER RIGHTS
SALT LAKE

LOG RECEIVED

(11) FLOWING WELL:

Controlled by (check) Valve [ ]
Cap [ ] Plug [ ] No Control [ ]
Does well leak around casing? Yes [ ] No [ ]

(12) WELL TESTS:

Drawdown is the distance in feet the water level is lowered below static level.

Was a pump test made? Yes [ ] No [ ] If so, by whom? .....
Yield: ..... gal./min. with ..... feet drawdown after ..... hours
" ..... " ..... " ..... " ..... "
" ..... " ..... " ..... " ..... "
Bailer test ..... gal./min. with ..... feet drawdown after ..... hours
Arterian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? No [ ] Yes [ ]

(13) WELL LOG:

Diameter of well ..... inches
Depth drilled ..... feet. Depth of completed well ..... feet.

NOTE: Place an "X" in the space or combination of spaces needed to designate the material or combination of materials encountered in each depth interval. Under REMARKS make any desirable notes as to occurrence of water and the color, size, nature, etc., of material encountered in each depth interval. Use additional sheet if needed.

DEPTH From	DEPTH To	Clay	Silt	Sand	Gravel	Cobbles	Boulders	Hardpan	Conglomerate	Bedrock	Other	REMARKS
0	10	X										yellow
10	27										X	Broken Rock
27	49	X										yellow
49	59			X	X							Igpm app.
59	71	X										yellow
71	103	X				X						Red clay + Broken Rock
103	127					X	X					Very Broken
127	175	X				X						yellow clay + Broken Rock
175	225	X										yellow + light
225	258	X				X						Red Clay + Broken Rock
258	267	X				X						Blue Clay + Broken Rock
267	281	X				X						Grey Clay + Broken Rock
281	300	X				X						yellow clay + very Broken Rock
												Dry hole except for the little bit of water at 49-59 not usable
												Pluged

Work started ..... 19..... Completed ..... 19.....

(14) PUMP:

Manufacturer's Name .....
Type: ..... H. P. .....
Depth to pump or bowles ..... feet

Well Driller's Statement:

This well was drilled under my supervision, and this report is true to the best of my knowledge and belief.

Name Jones Drilling Co. (Person, firm, or corporation) (Type or print)
Address East Route 4 Price, Utah 84501
(Signed) ..... (Well Driller)
License No. 351 Date ..... 19.....

USE OTHER SIDE FOR ADDITIONAL REMARKS

Form 113—5M—12-60

(91) Exchange E-452

Examined
Recorded: B. C. 1/29/73 T. B. Pm
Inspection Sheet
Copied 1-30-73 6:M

REPORT OF WELL DRILLER
STATE OF UTAH

Application No. 452 54-87
Claim No.
Coordinate No. (2-13-7)5 c b c

GENERAL STATEMENT: Report of well driller is hereby made and filed with the State Engineer, in accordance with the laws of Utah. (This report shall be filed with the State Engineer within 30 days after the completion or abandonment of the well. Failure to file such reports constitutes a misdemeanor.)

(1) WELL OWNER:
Name Robert Radacavish
Address 340 No 6 E Price, Utah

(2) LOCATION OF WELL:
County Carbon Ground Water Basin (leave blank)
~~North~~ South 970 feet, East ~~West~~ 60 feet from ~~NE~~ NW Corner of Section 5, T 13 ~~N~~ S, R 7 E SLBM ~~M~~ USM (strike out words not needed)

(3) NATURE OF WORK (check): New Well [X]
Replacement Well [ ] Deepening [ ] Repair [ ] Abandon [ ]
If abandonment, describe material and procedure:

(4) NATURE OF USE (check):
Domestic [ ] Industrial [ ] Municipal [ ] Stockwater [ ]
Irrigation [X] Mining [ ] Other [ ] Test Well [ ]

(5) TYPE OF CONSTRUCTION (check):
Rotary [X] Dug [ ] Jetted [ ]
Cable [ ] Driven [ ] Bored [ ]

(6) CASING SCHEDULE: Threaded [ ] Welded [X]
6 5/8" Diam. from 0 feet to 60 feet Gage .40
5 5/8" Diam. from 60 feet to 140 feet Gage .40
" Diam. from feet to feet Gage
New [ ] Reject [ ] Used [X]

(7) PERFORATIONS: Perforated? Yes [X] No [ ]
Type of perforator used Mills
Size of perforations 4 inches by 3/8 inches
40 perforations from 110 feet to 137 feet
perforations from feet to feet
perforations from feet to feet
perforations from feet to feet
perforations from feet to feet

(8) SCREENS: Well screen installed? Yes [ ] No [X]
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to
Diam. Slot size Set from ft. to

(9) CONSTRUCTION:
Was well gravel packed? Yes [ ] No [X] Size of gravel:
Gravel placed from feet to feet
Was a surface seal provided? Yes [X] No [ ]
To what depth? 20 feet
Material used in seal: Cement
Did any strata contain unusable water? Yes [ ] No [X]
Type of water: Depth of strata
Method of sealing strata off:

Was surface casing used? Yes [X] No [ ]
Was it cemented in place? Yes [X] No [ ]

(10) WATER LEVELS:
Static level 105 feet below land surface Date 12-2-72
Artesian pressure feet above land surface Date

RECEIVED: JAN 11 1973 WATER RIGHTS

(11) FLOWING WELL:
Controlled by (check) Valve [ ]
Cap [ ] Plug [ ] No Control [ ]
Does well leak around casing? Yes [ ] No [ ]

(12) WELL TESTS: Drawdown is the distance in feet the water level is lowered below static level.
Was a pump test made? Yes [ ] No [X] If so, by whom?
Yield: 50 gal./min. with NO feet drawdown after 1/2 hours
" " " " " "
" " " " " "
Bailer test gal./min. with feet drawdown after hours
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? No [X] Yes [ ]

(13) WELL LOG: Diameter of well inches
Depth drilled feet. Depth of completed well feet.

NOTE: Place an "X" in the space or combination of spaces needed to designate the material or combination of materials encountered in each depth interval. Under REMARKS make any desirable notes as to occurrence of water and the color, size, nature, etc., of material encountered in each depth interval. Use additional sheet if needed.

DEPTH From	DEPTH To	Clay	Silt	Sand	Gravel	Cobbles	Boulders	Hardpan	Conglomerate	Bedrock	Other	REMARKS
0	10	X		X								Top soil
10	60	X		X		X						TAN to yellow
60	80	X		X		X						Gray
80	85			X			X					Yellow
85	105	X		X								"
105	110			X								TAN MED hard
												fine grain
110	125			X	X							TAN - SOFT
												yielding water
125	140			X								light yellow

Work started 11-28-, 1972 Completed 12-2-, 1972

(14) PUMP:
Manufacturer's Name
Type: H. P.
Depth to pump or bowles feet

Well Driller's Statement:
This well was drilled under my supervision, and this report is true to the best of my knowledge and belief.
Name CATES Const & Drlg Co (Person, firm, or corporation) (Type or print)
Address MOAB, Utah
(Signed) Jay Cates (Well Driller)
License No. 294 Date 12-3-, 1972

USE OTHER SIDE FOR ADDITIONAL REMARKS

E1560; E1906

Form 113—534—12-60

Examined .....
Recorded: B. C. ..... T. B. .....
Inspection Sheet .....
Copied .....

REPORT OF WELL DRILLER
STATE OF UTAH

Application No. Exchange 1560-1701
Claim No. .....
Coordinate No. .....

RECEIVED
MAR 2 1982

GENERAL STATEMENT: Report of well driller is hereby made and filed with the State Engineer, in accordance with the laws of Utah. (This report shall be filed with the State Engineer within 30 days after the completion or abandonment of the well. Failure to file such reports constitutes a misdemeanor.)

(1) WELL OWNER:
Name Costal States Energy
Address Utah Fuel Co. POBox 719 Helper Ut 84526

(2) LOCATION OF WELL:
County Carbon Ground Water Basin ..... (leave blank)
North/South 652.92 feet, East/West 3,27316 feet from S.W. Corner of Section 17, T. 13 S., R. 7 E SLBM (strike out words not needed)

(3) NATURE OF WORK (check):
New Well [X] Replacement Well [ ] Deepening [ ] Repair [ ] Abandon [ ]
If abandonment, describe material and procedure: .....

(4) NATURE OF USE (check):
Domestic [ ] Industrial [ ] Municipal [ ] Stockwater [ ]
Irrigation [ ] Mining [ ] Other [ ] Test Well [X]

(5) TYPE OF CONSTRUCTION (check):
Rotary [X] Dug [ ] Jetted [ ]
Cable [ ] Driven [ ] Bored [ ]

(6) CASING SCHEDULE:
Threaded [ ] Welded [X]
..... " Diam. from ..... feet to ..... feet Gage .....
..... " Diam. from ..... feet to ..... feet Gage .....
..... " Diam. from ..... feet to ..... feet Gage .....
New [X] Reject [ ] Used [ ]

(7) PERFORATIONS:
Perforated? Yes [ ] No [ ]
Type of perforator used .....
Size of perforations ..... inches by ..... inches
..... perforations from ..... feet to ..... feet
..... perforations from ..... feet to ..... feet
..... perforations from ..... feet to ..... feet
..... perforations from ..... feet to ..... feet
..... perforations from ..... feet to ..... feet

(8) SCREENS:
Well screen installed? Yes [X] No [ ]
Manufacturer's Name Johnson
Type Wire Model No. .....
Diam. 6 5/8 Slot size .60 Set from 200 ft. to 160
Diam. ..... Slot size ..... Set from ..... ft. to .....

(9) CONSTRUCTION:
Was well gravel packed? Yes [X] No [ ] Size of gravel: 8-12
Gravel placed from 200 feet to 120 feet
Was a surface seal provided? Yes [X] No [ ]
To what depth? 70 feet
Material used in seal: Cement
Did any strata contain unusable water? Yes [ ] No [X]
Type of water: ..... Depth of strata .....
Method of sealing strata off: .....
Was surface casing used? Yes [X] No [ ]
Was it cemented in place? Yes [X] No [ ]

(10) WATER LEVELS:
Static level 6 feet below land surface Date Dec
Artesian pressure ..... feet above land surface Date .....

LOG RECEIVED: MAR 03 1982

(11) FLOWING WELL:
Controlled by (check) Valve [ ]
Cap [ ] Plug [ ] No Control [ ]
Does well leak around casing? Yes [ ] No [ ]

(12) WELL TESTS:
Drawdown is the distance in feet the water level is lowered below static level.
Was a pump test made? Yes [X] No [ ] If so, by whom? .....
Yield: 1.7 gal./min. with 190 feet drawdown after 24 hours
" ..... " ..... " ..... "
" ..... " ..... " ..... "
Bailer test ..... gal./min. with ..... feet drawdown after ..... hours
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? No [X] Yes [ ]

(13) WELL LOG:
Diameter of well 6 5/8 inches
Depth drilled 206 feet. Depth of completed well 200 feet.

NOTE: Place an "X" in the space or combination of spaces needed to designate the material or combination of materials encountered in each depth interval. Under REMARKS make any desirable notes as to occurrence of water and the color, size, nature, etc., of material encountered in each depth interval. Use additional sheet if needed.

DEPTH From	DEPTH To	MATERIAL Clay	Silt	Sand	Gravel	Cobble	Boulders	Hardpan	Conglomerate	Bedrock	Other	REMARKS
0	35											Boulders Fill
35	70			X								Broken
35	110	X										
110	120	X			X							Gravel showing
120	200	X			X							less Gravel showing

Work started Dec. 21, 1981 Completed Dec. 29, 1981

(14) PUMP:
Manufacturer's Name .....
Type: ..... H. P. .....
Depth to pump or bowles ..... feet

Well Driller's Statement:
This well was drilled under my supervision, and this report is true to the best of my knowledge and belief.

Name Scott Stephenson Drilling (Person, firm, or corporation) (Type or print)
Address Box 141 Fillmore, Utah 84631
(Signed) Scott Stephenson (Well Driller)
License No. 186 Date Feb. 26, 1982

USE OTHER SIDE FOR ADDITIONAL REMARKS

APPENDIX 728

Spring Depletion Curves (1980-1992)

CONSULTANTS/ENGINEERS
HANSEN ALLEN & LUCE inc
SALT LAKE CITY, UTAH

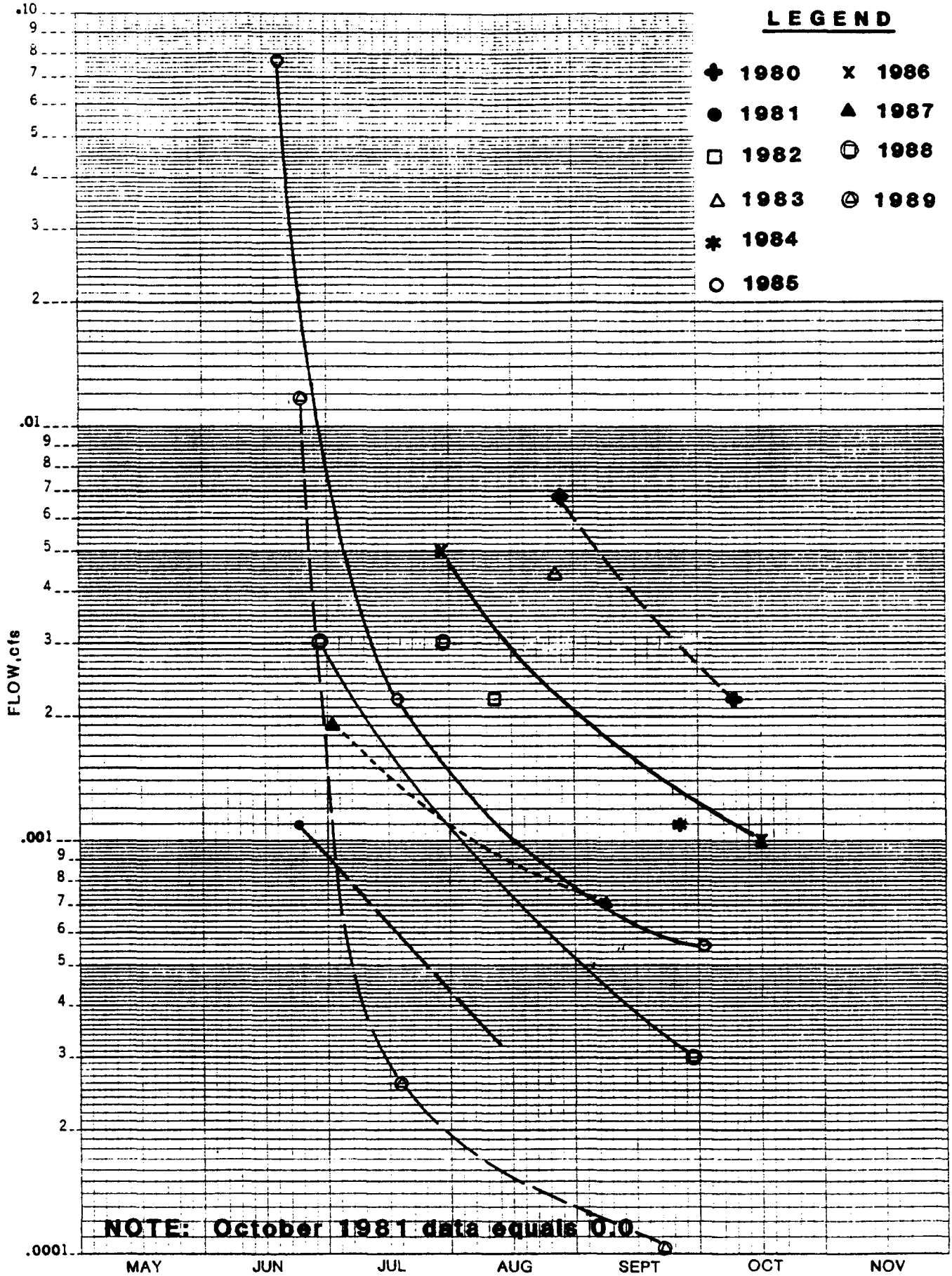


Figure 2. Spring S7-11 Depletion Curve

HANSEN ALLEN & LUCE inc

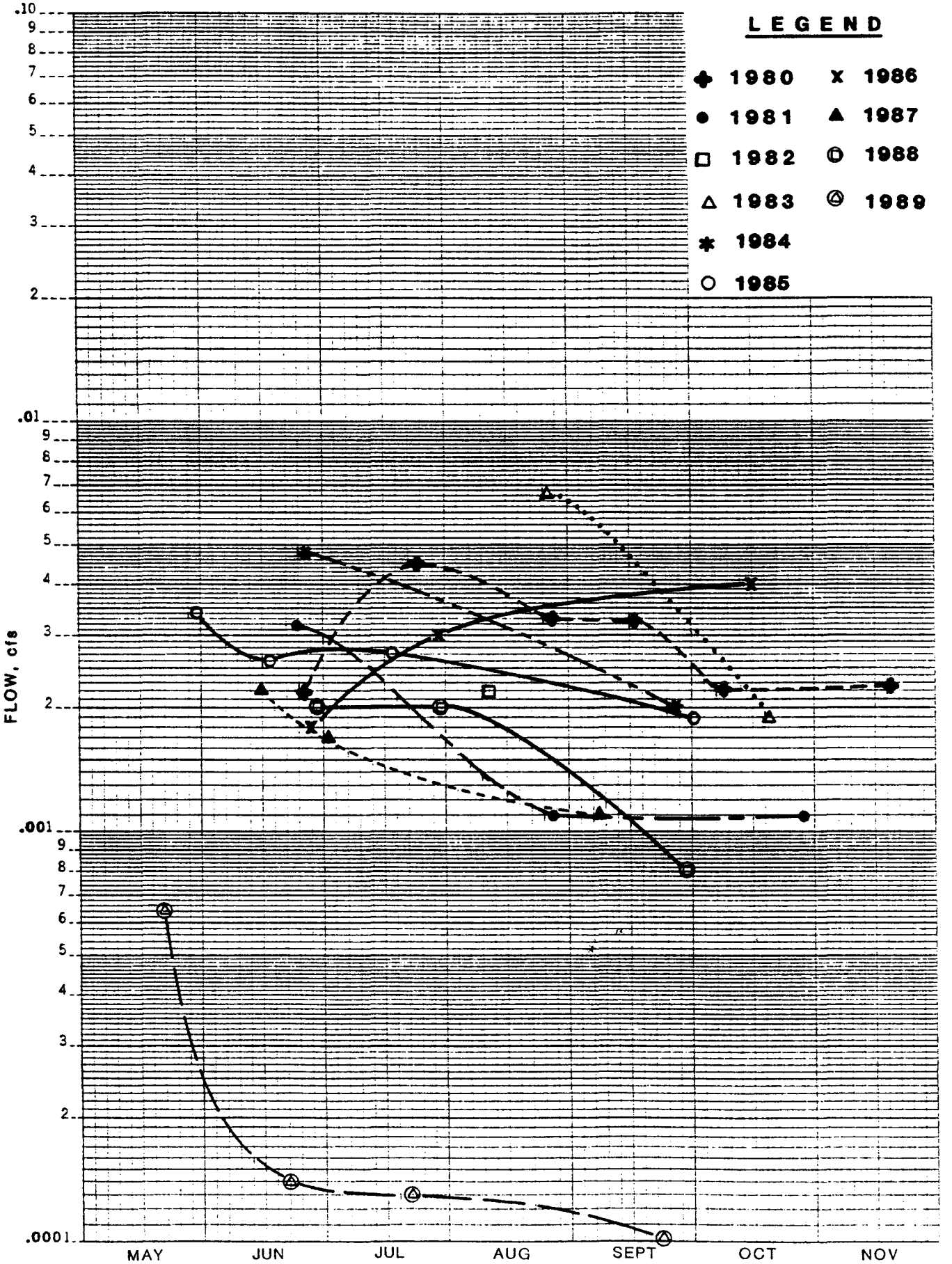


Figure 3. Spring S24-12 Depletion Curve

HANSEN ALLEN & LUCE inc

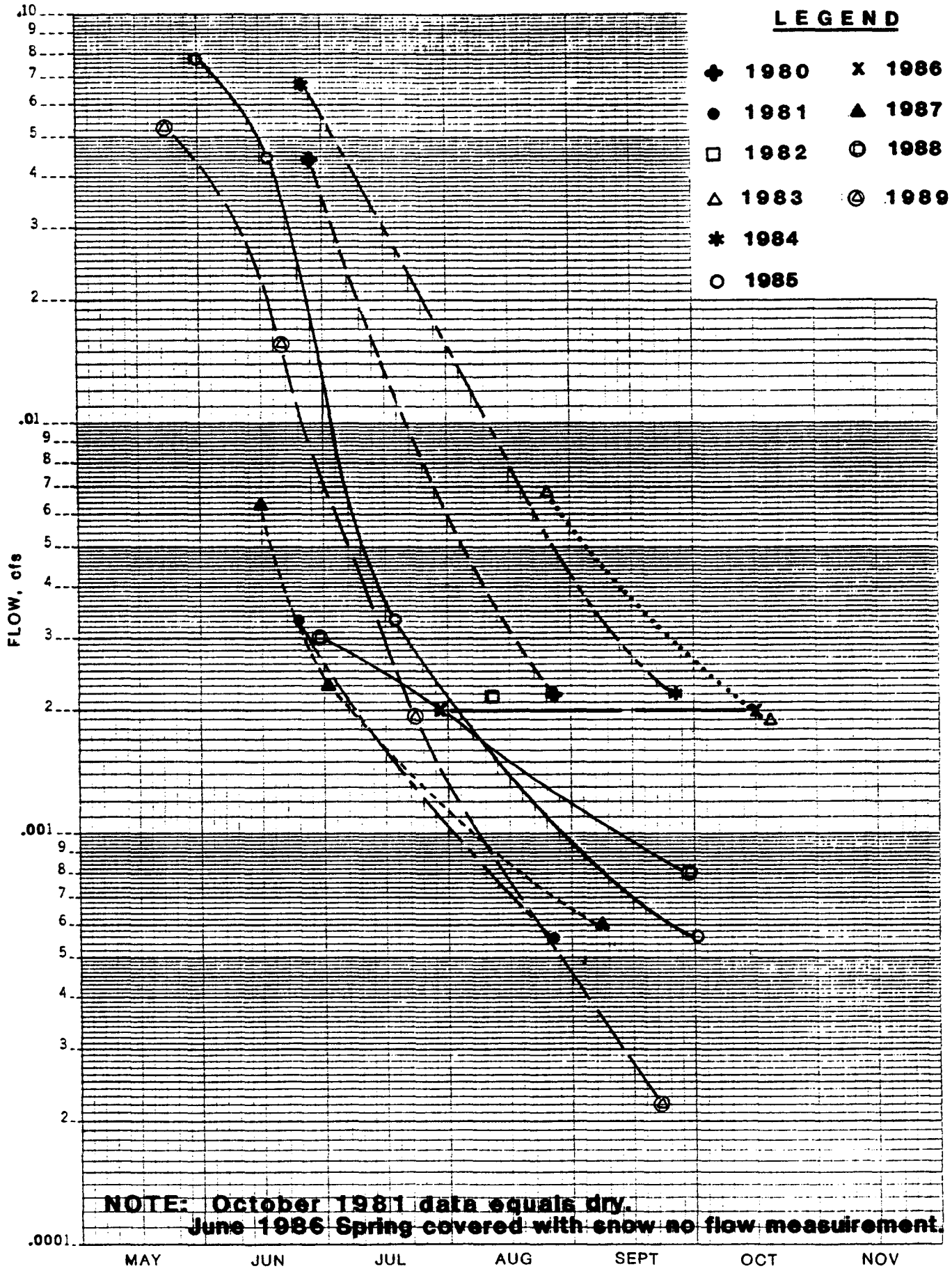


Figure 4. Spring S25-13 Depletion Curve

HANSEN ALLEN & LUCE INC

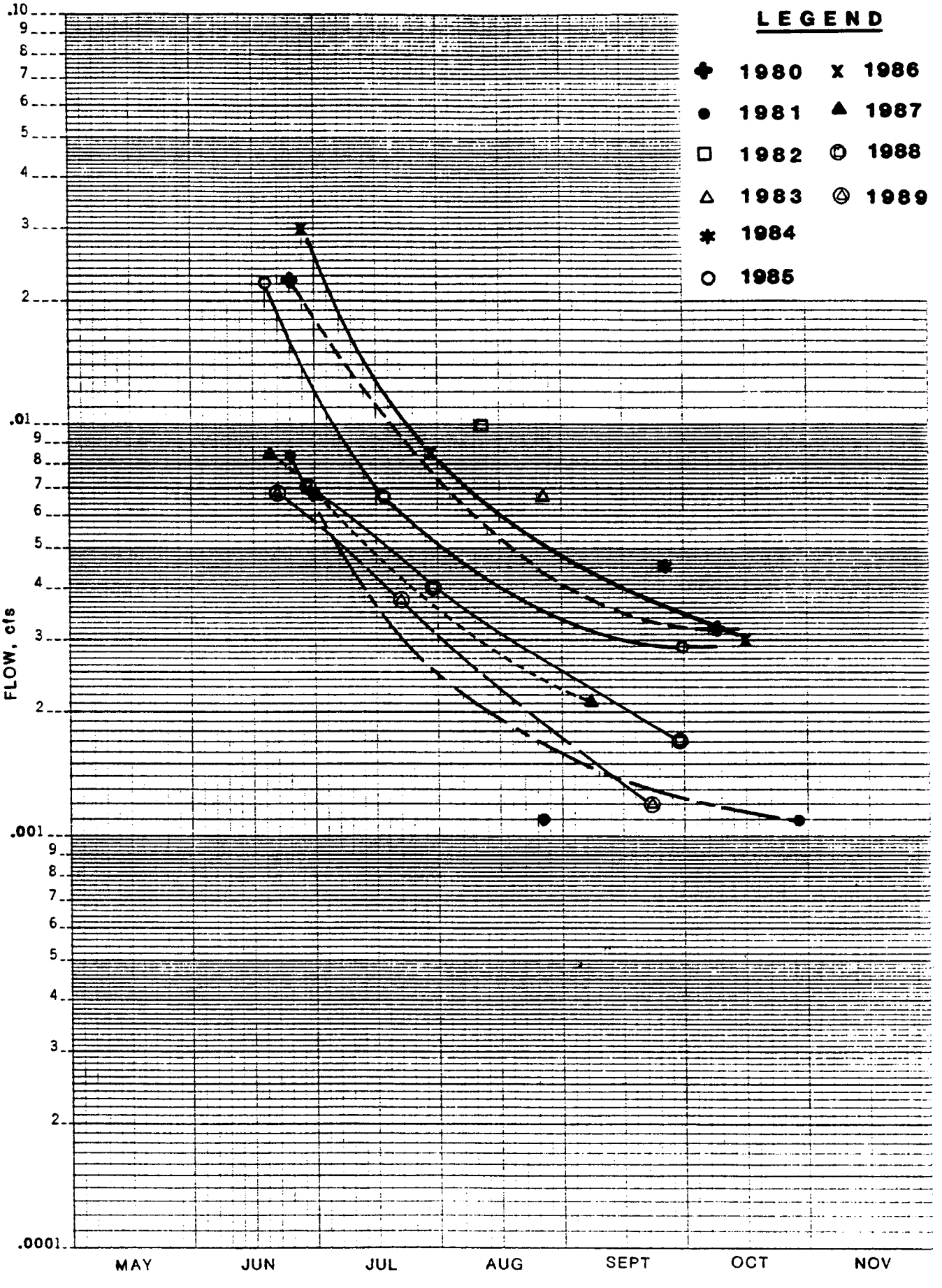


Figure 5. Spring S31-13 Depletion Curve

HANSEN ALLEN & LUCE inc

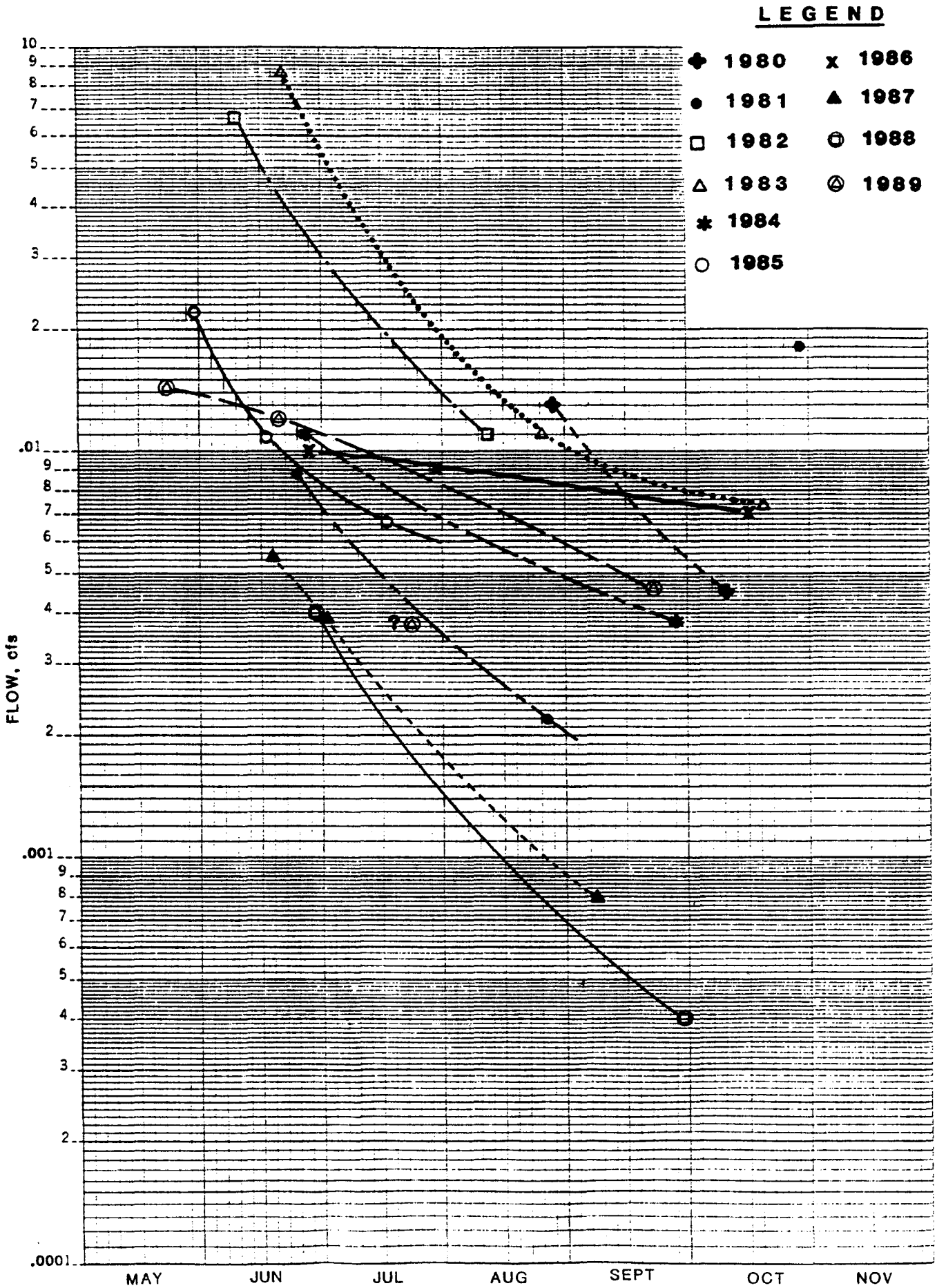


Figure 6. Spring S36-17 Depletion Curve

HANSEN ALLEN & LUCE inc

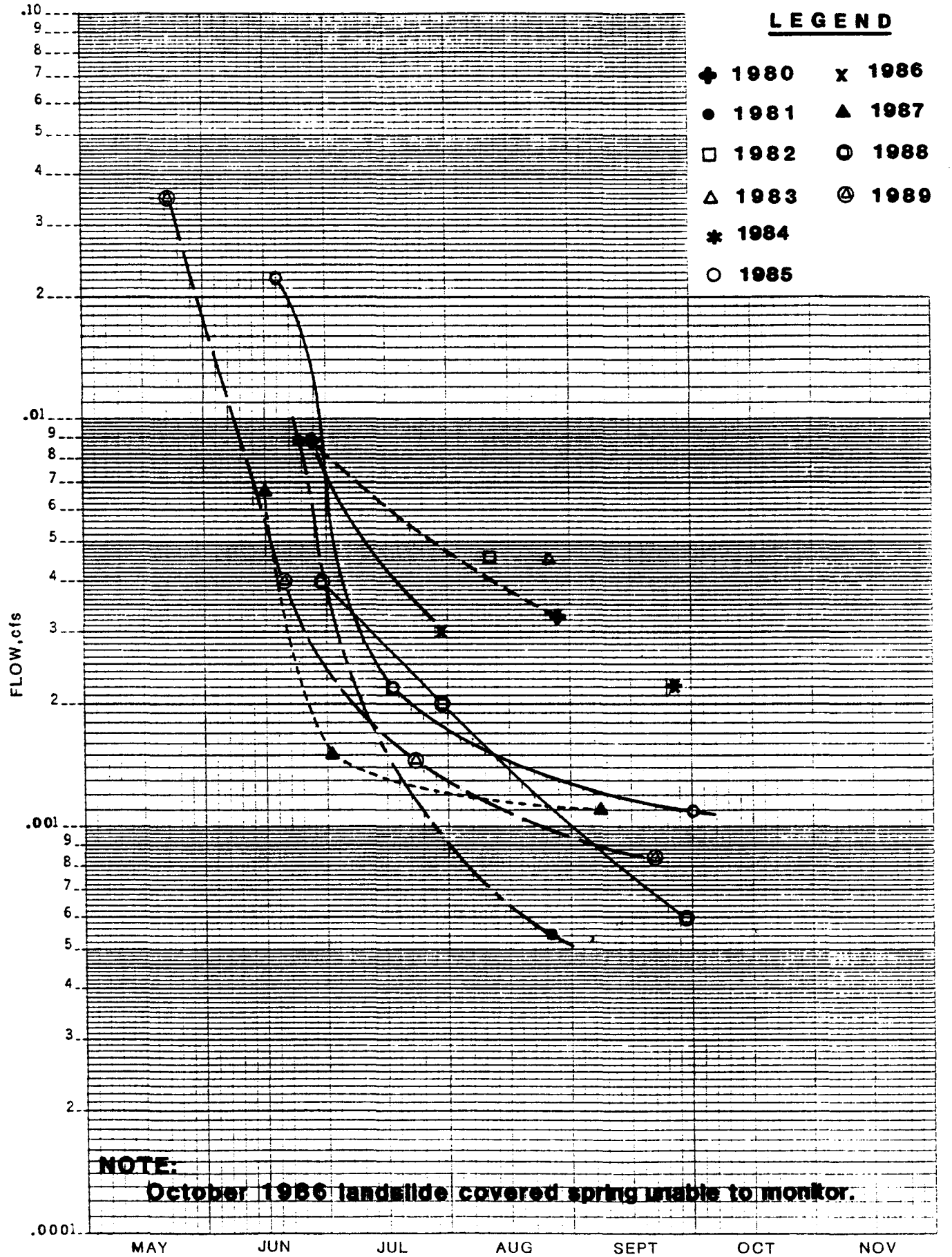


Figure 7. Spring S36-19 Depletion Curve

HANSEN ALLEN & LUCE inc

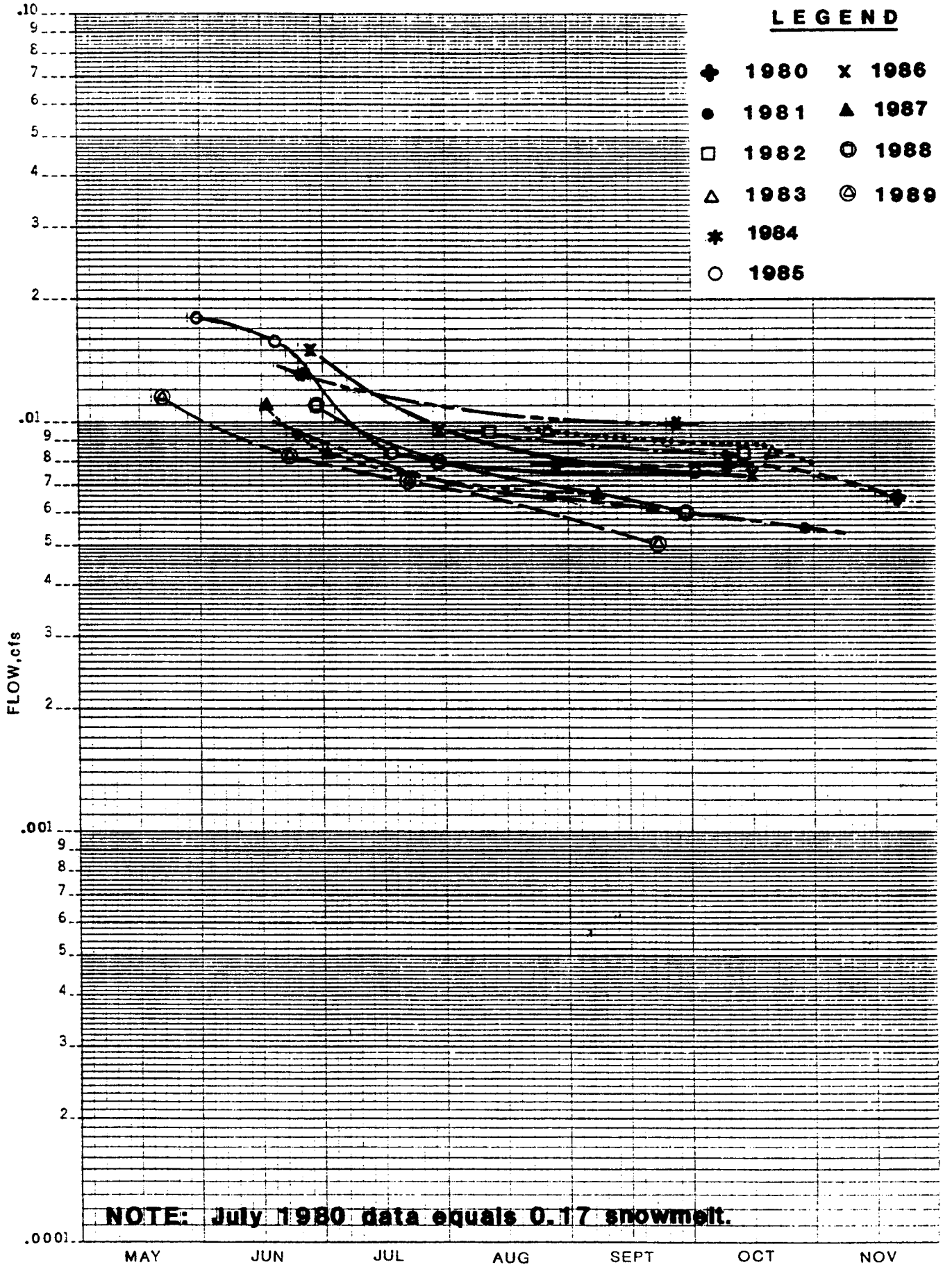
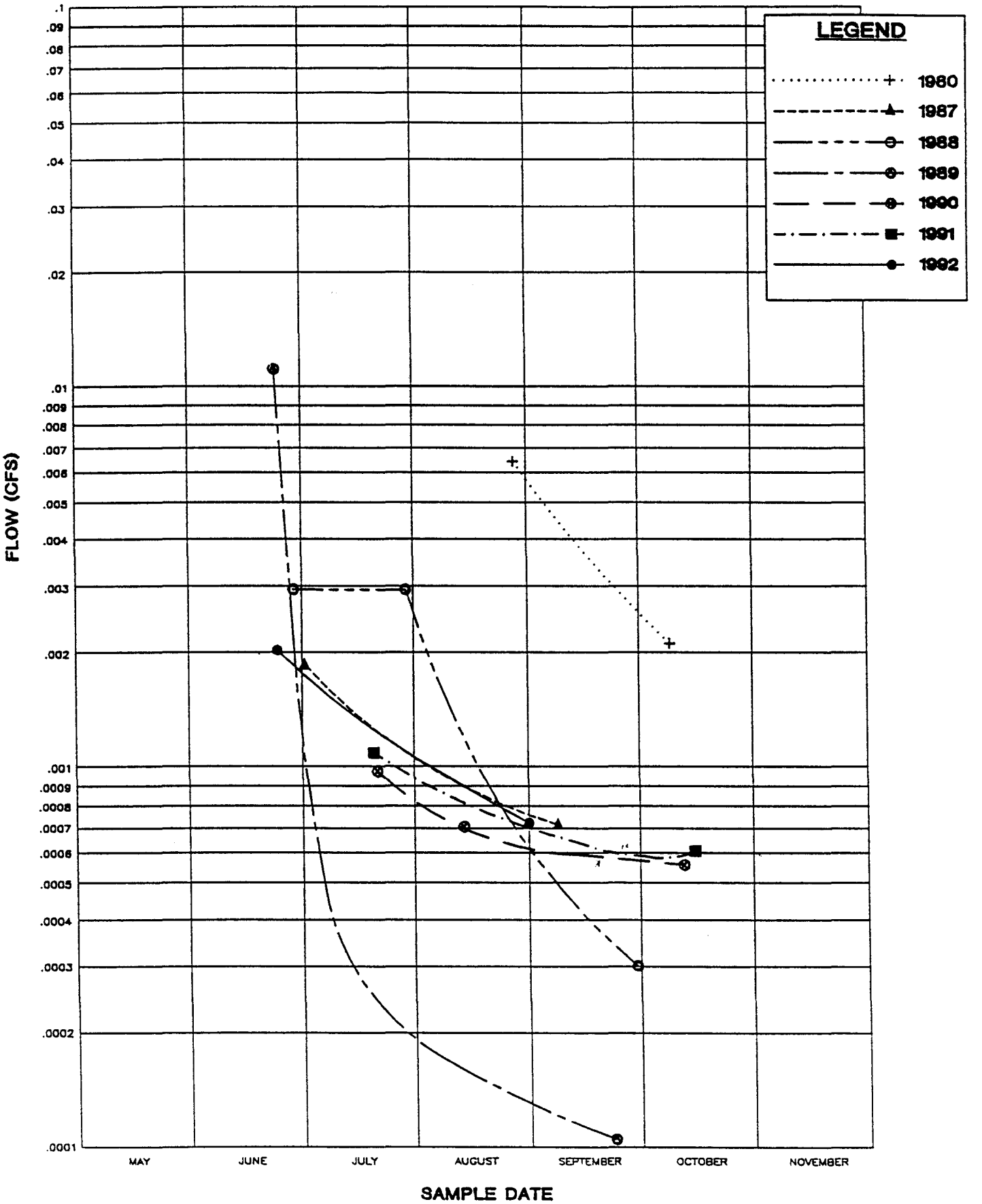


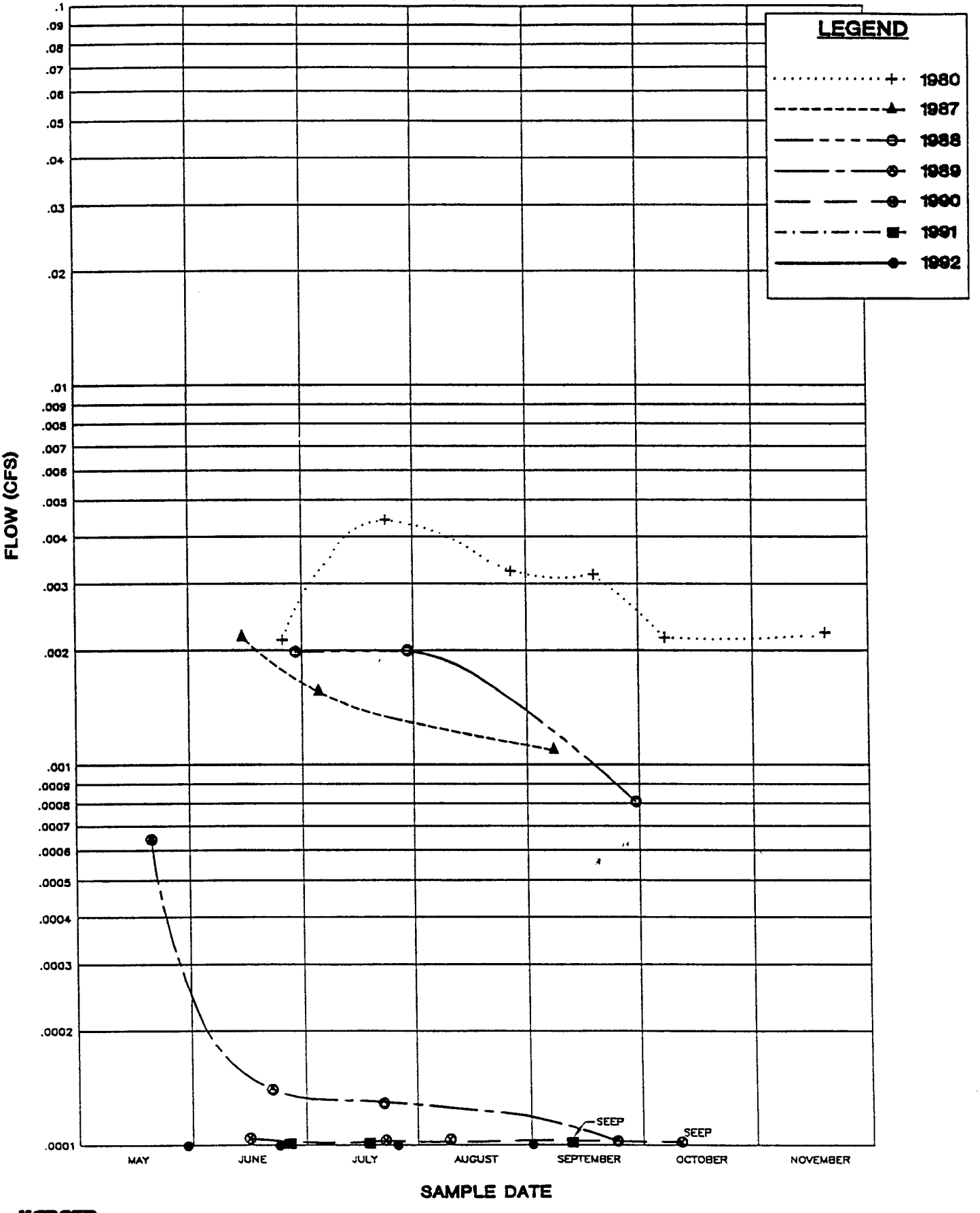
Figure 8. Spring S36-23 Depletion Curve

HANSEN ALLEN & LUCE inc



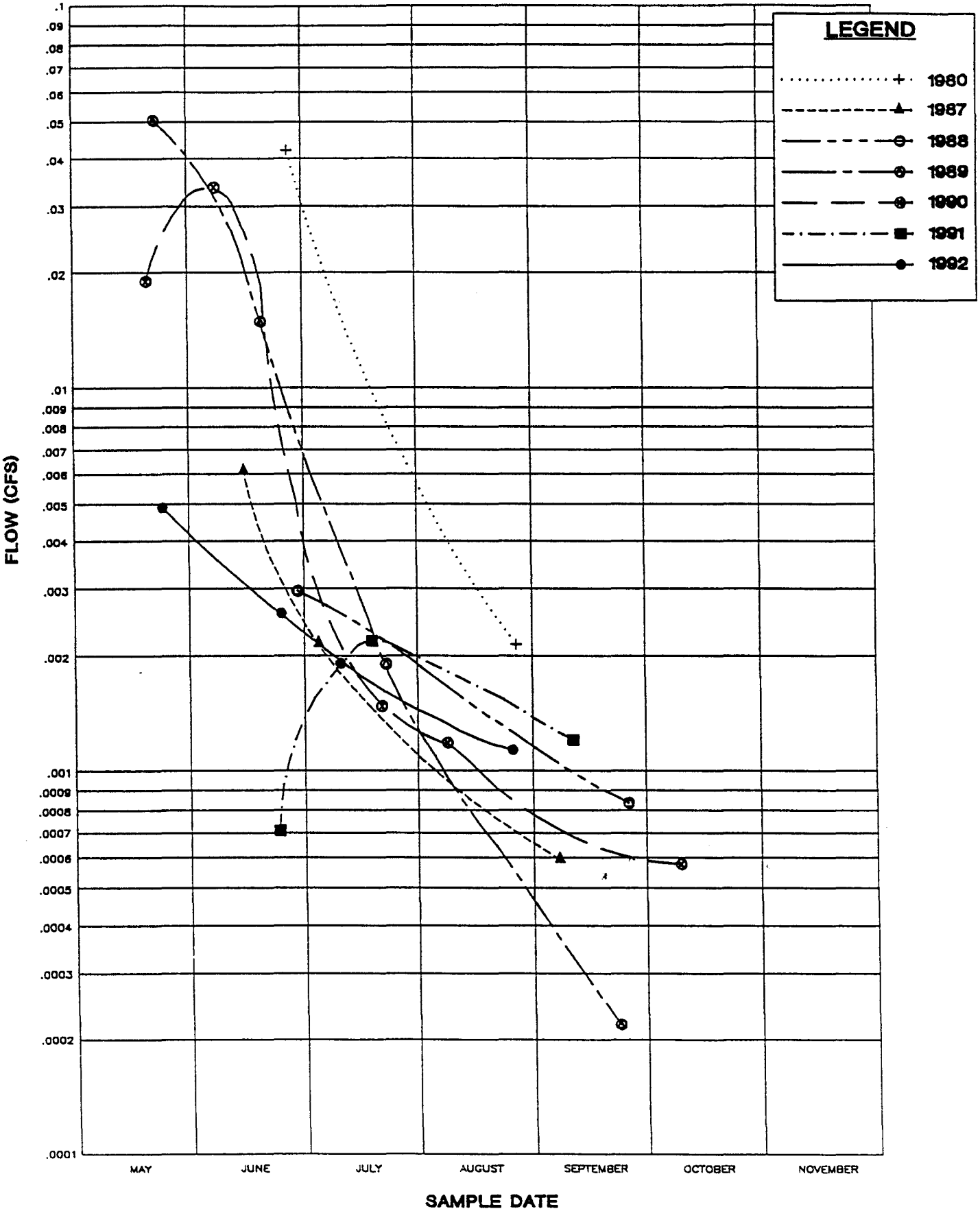
HANSEN ALLEN & LUCE

FIGURE 1. SPRING S7-11 DEPLETION CURVE



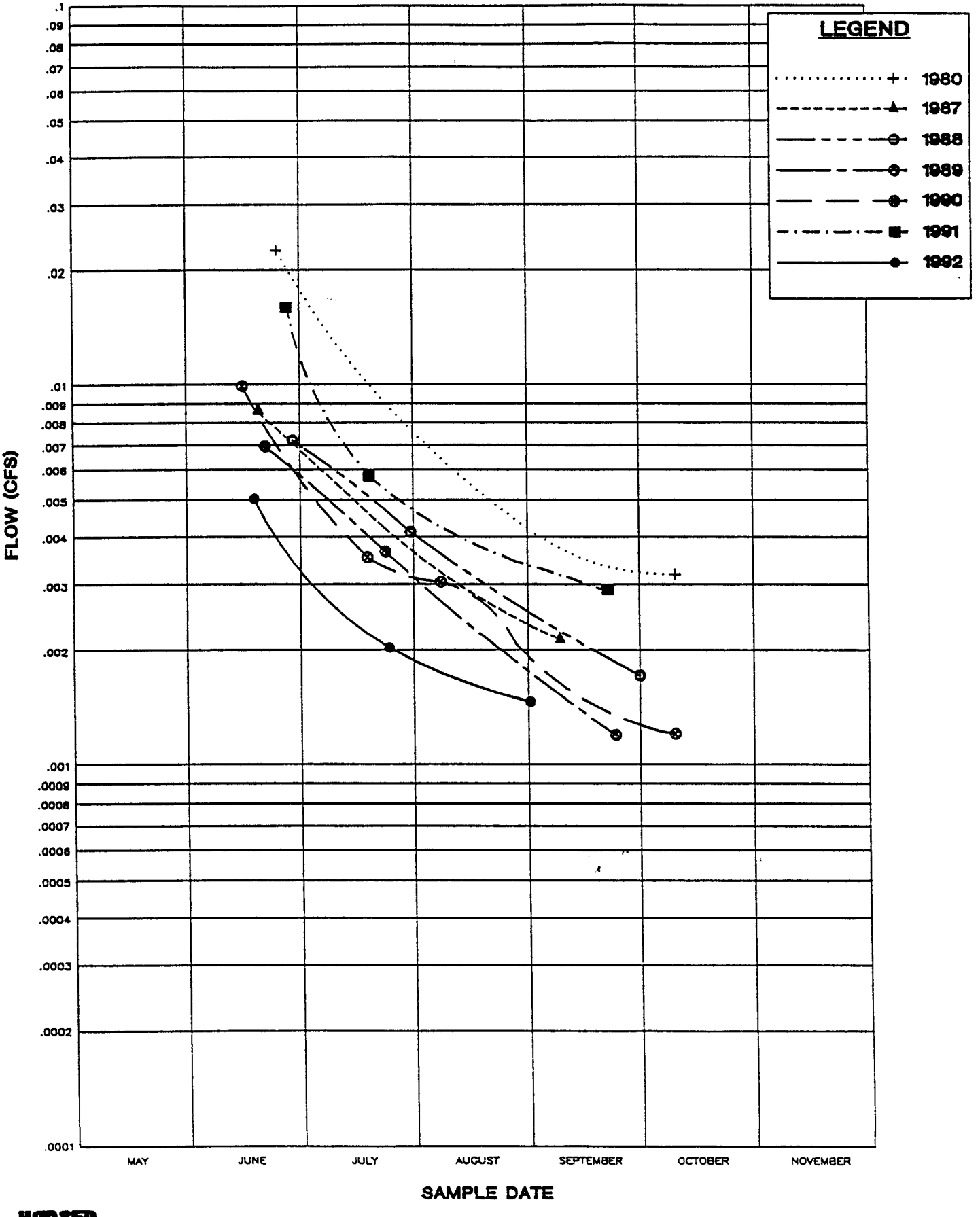
HANSEN ALLEN & LUCE

FIGURE 2. SPRING S24-12 DEPLETION CURVE



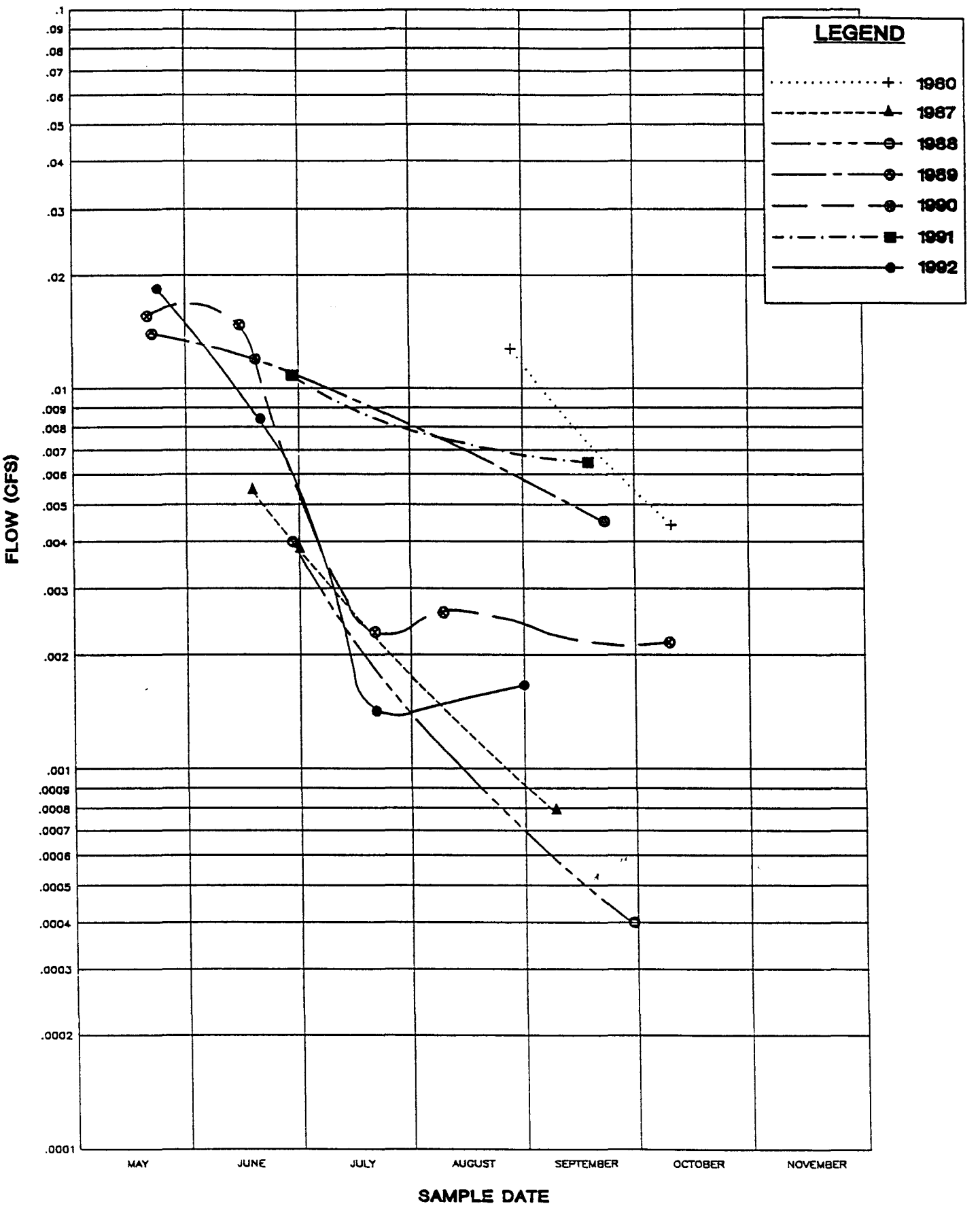
HANSEN ALLEN & LUCE

FIGURE 3. SPRING S25-13 DEPLETION CURVE



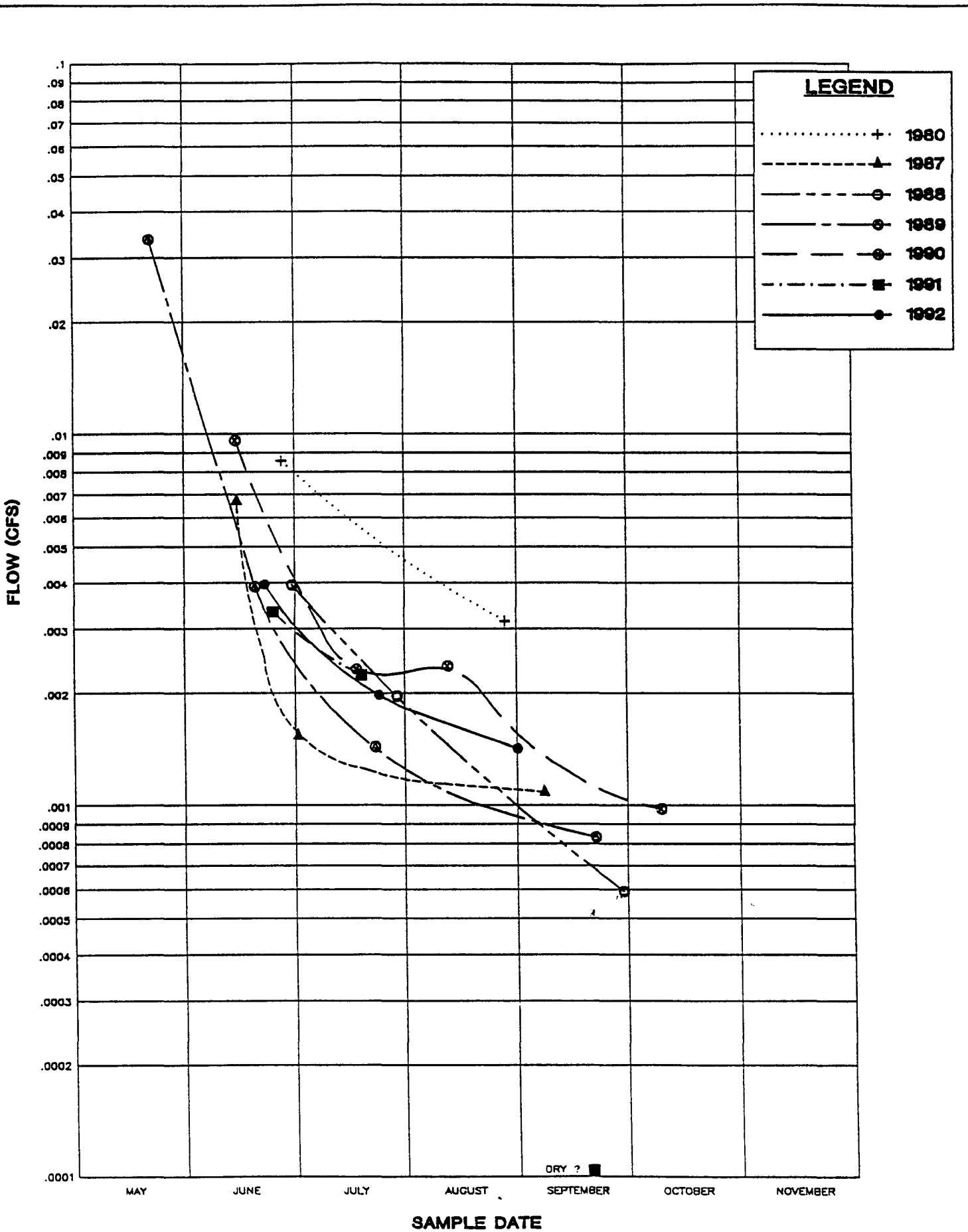
HANSEN ALLEN & LUCE

FIGURE 4. SPRING S31-13 DEPLETION CURVE



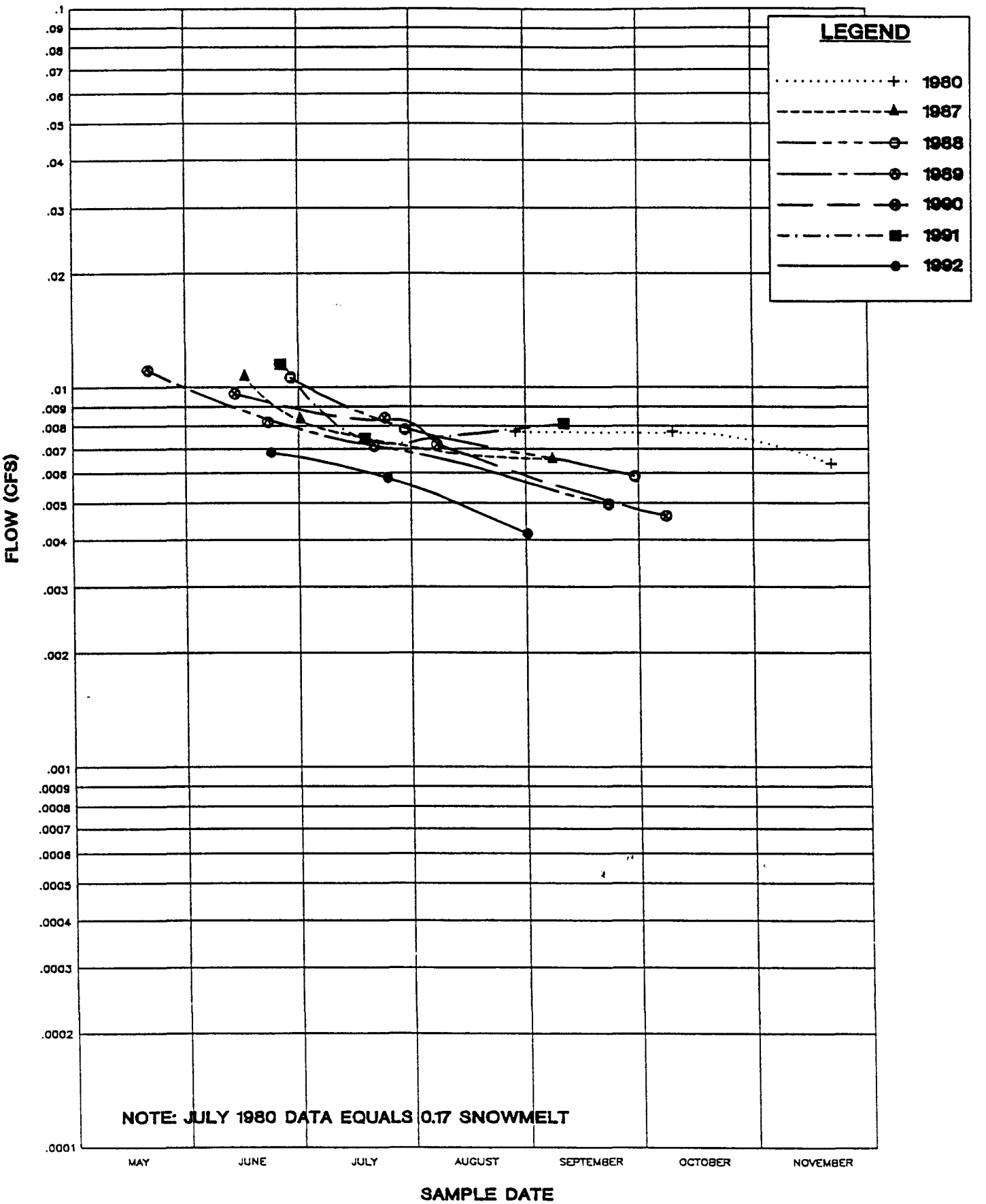
HANSEN ALLEN & LUCE

FIGURE 5. SPRING S36-17 DEPLETION CURVE



HANSEN ALLEN & LUCE

FIGURE 6. SPRING S36-19 DEPLETION CURVE



HARDEN ALLEN & DUCE

FIGURE 7. SPRING S36-23 DEPLETION CURVE

Figure 8

S7-11 Flow History

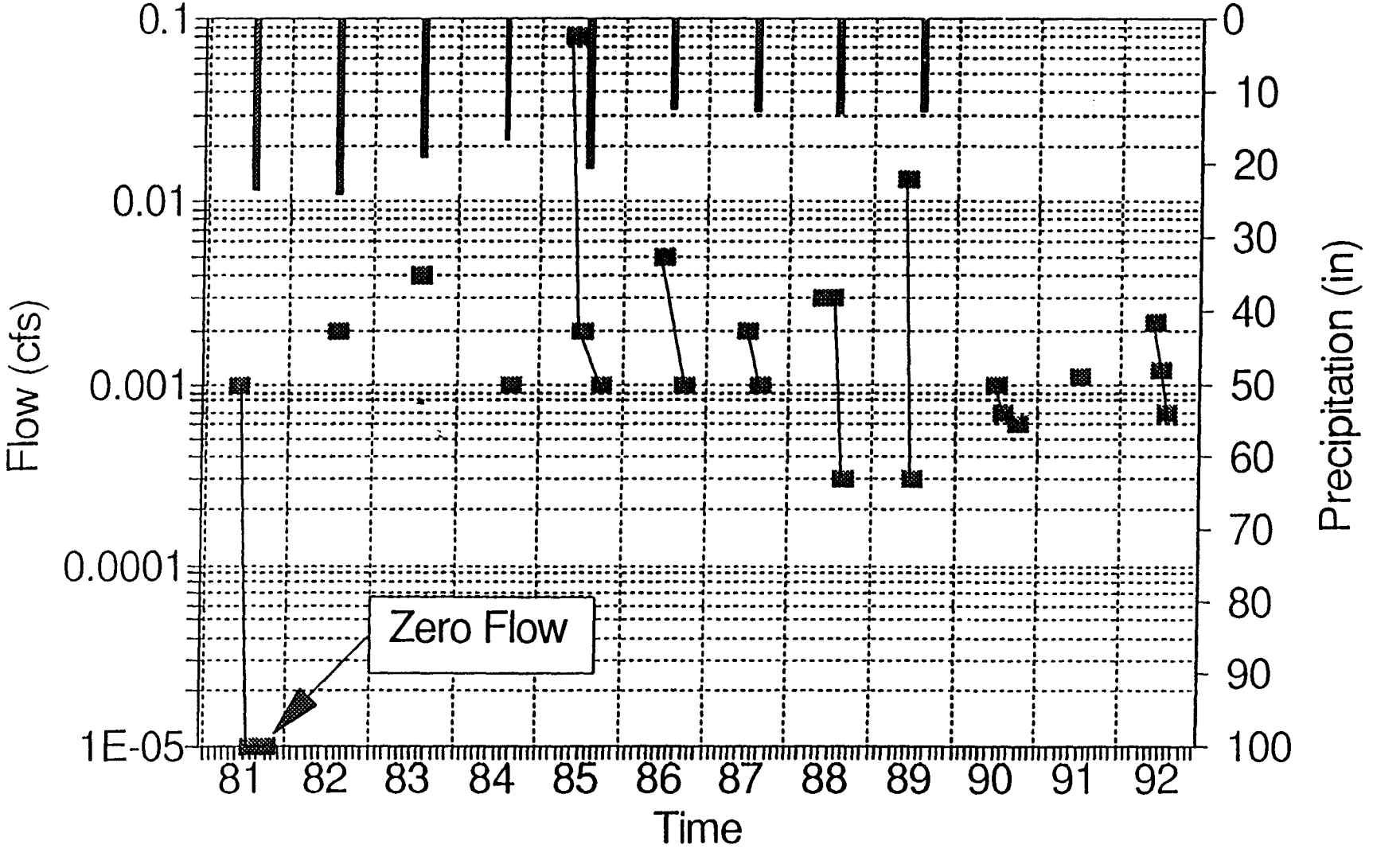


Figure 9

S24-12 Flow History

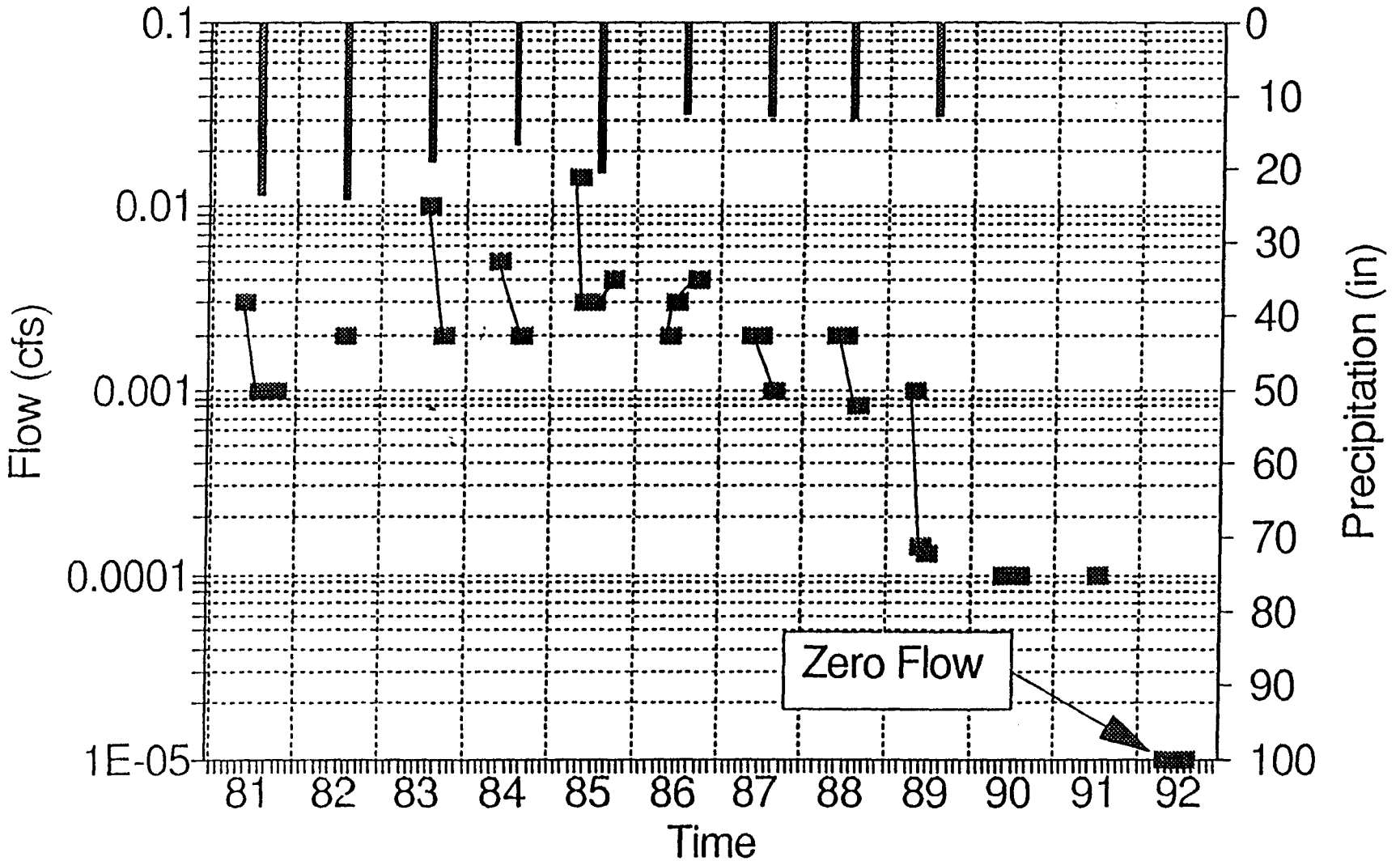


Figure 10

S25-13 Flow History

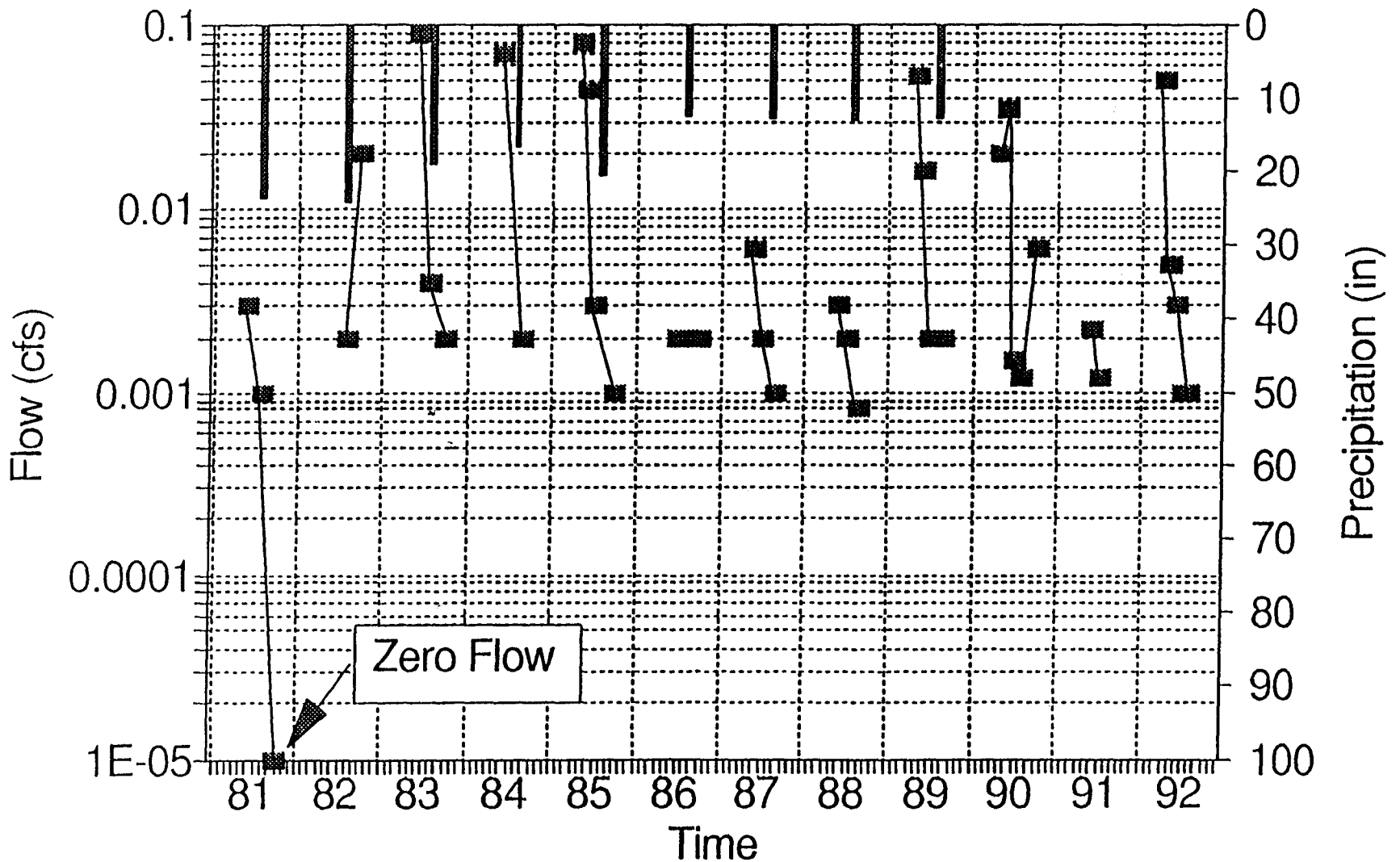


Figure 11

S31-13 Flow History

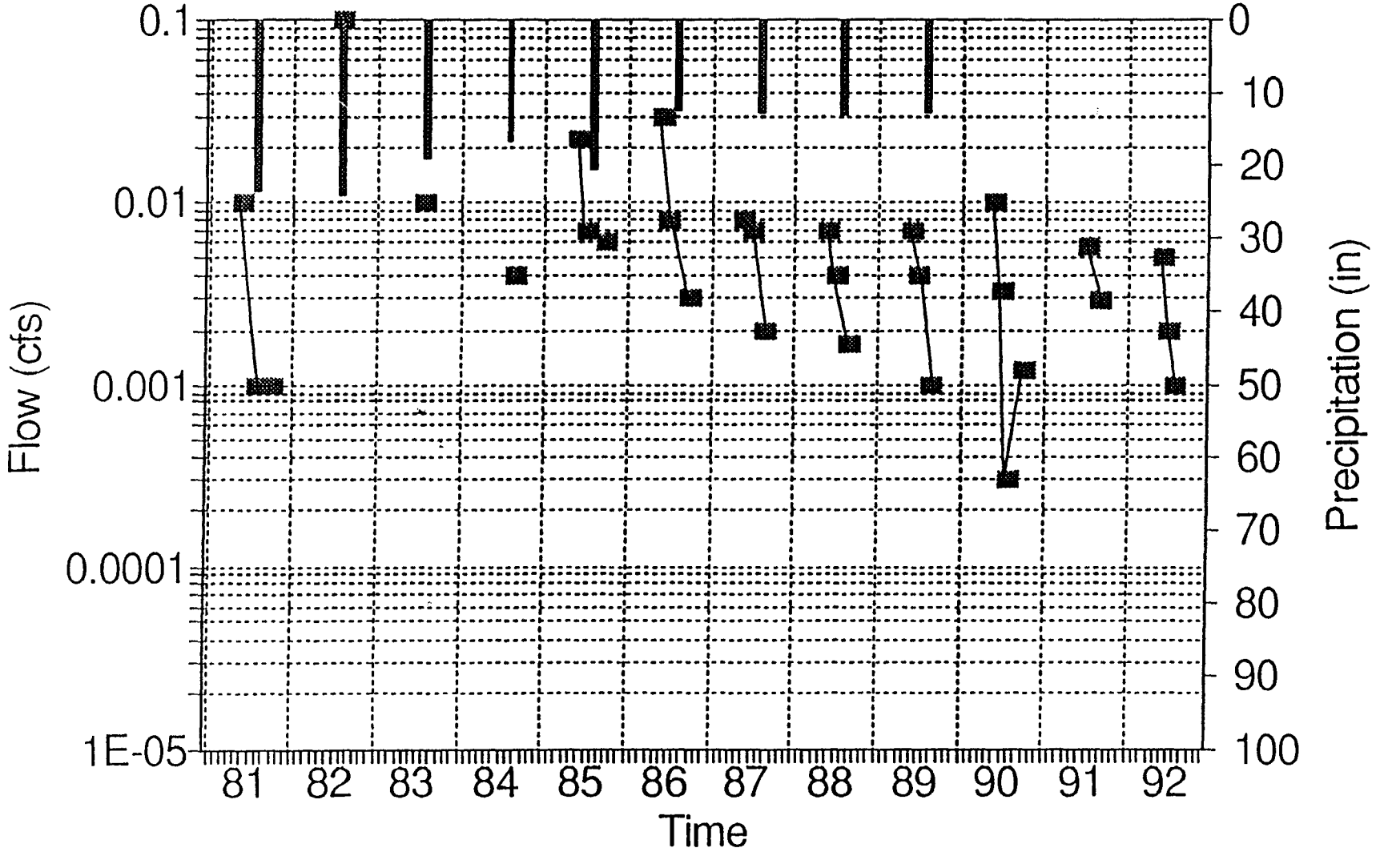


Figure 12

S36-17 Flow History

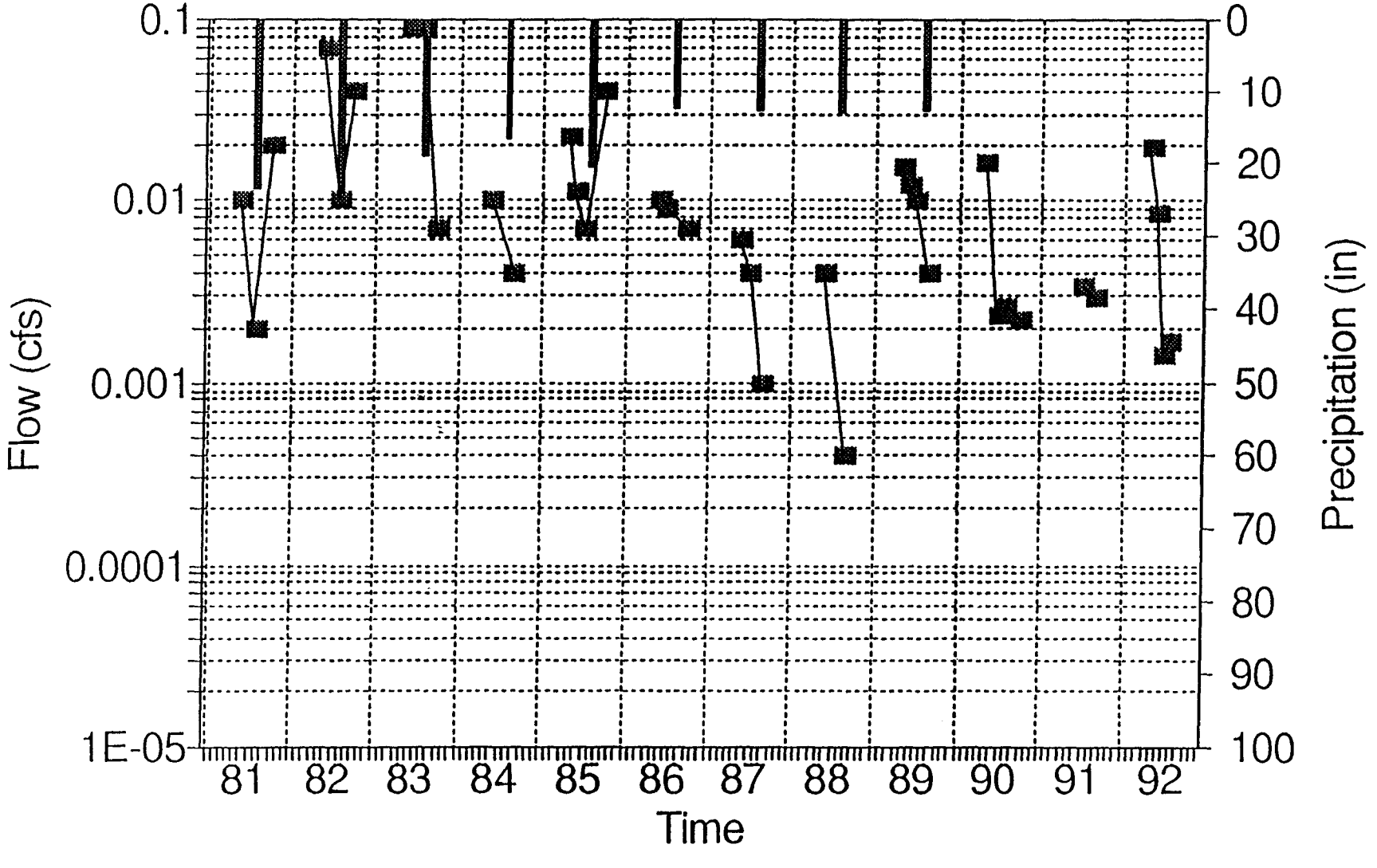


Figure 13

S36-19 Flow History

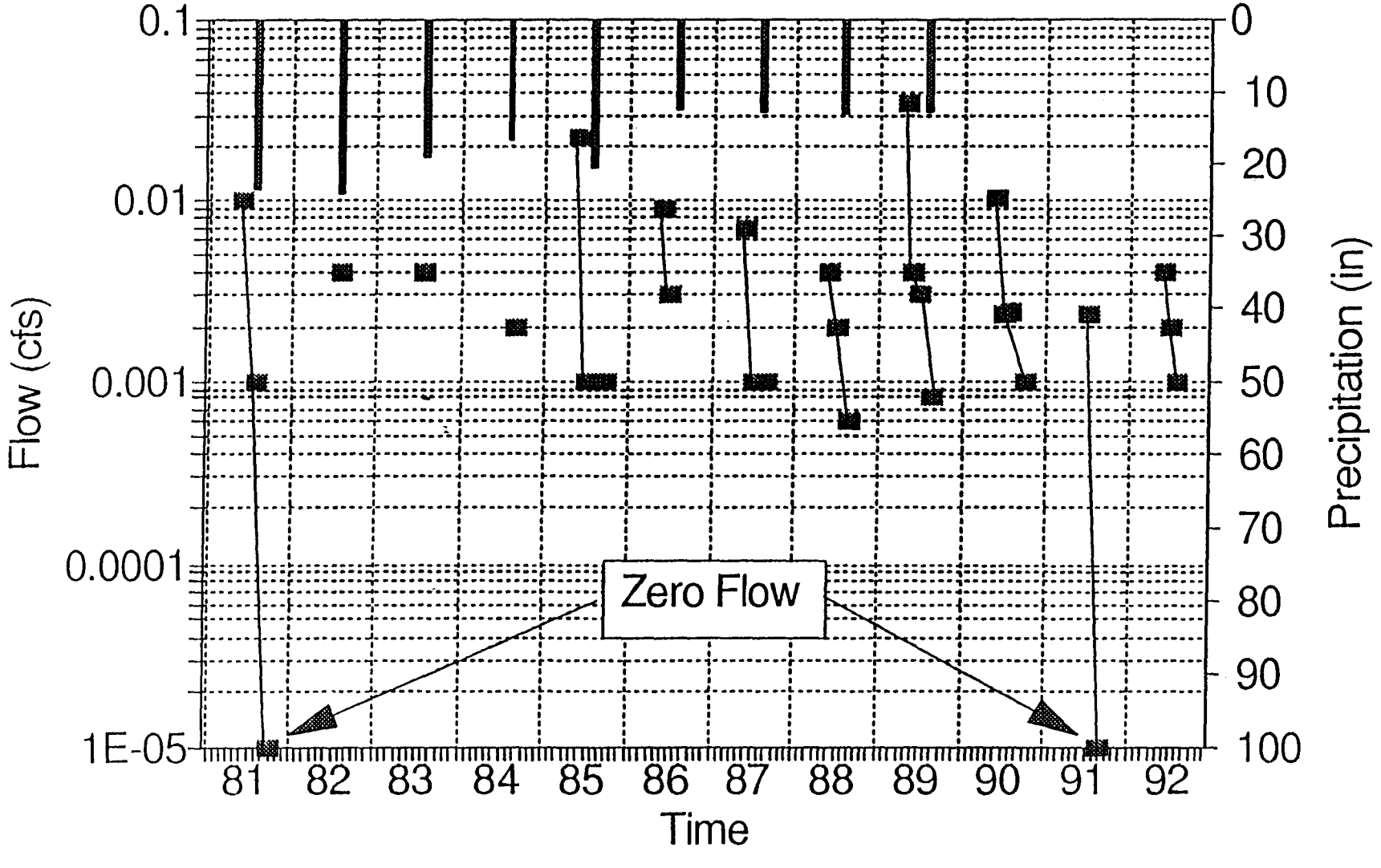
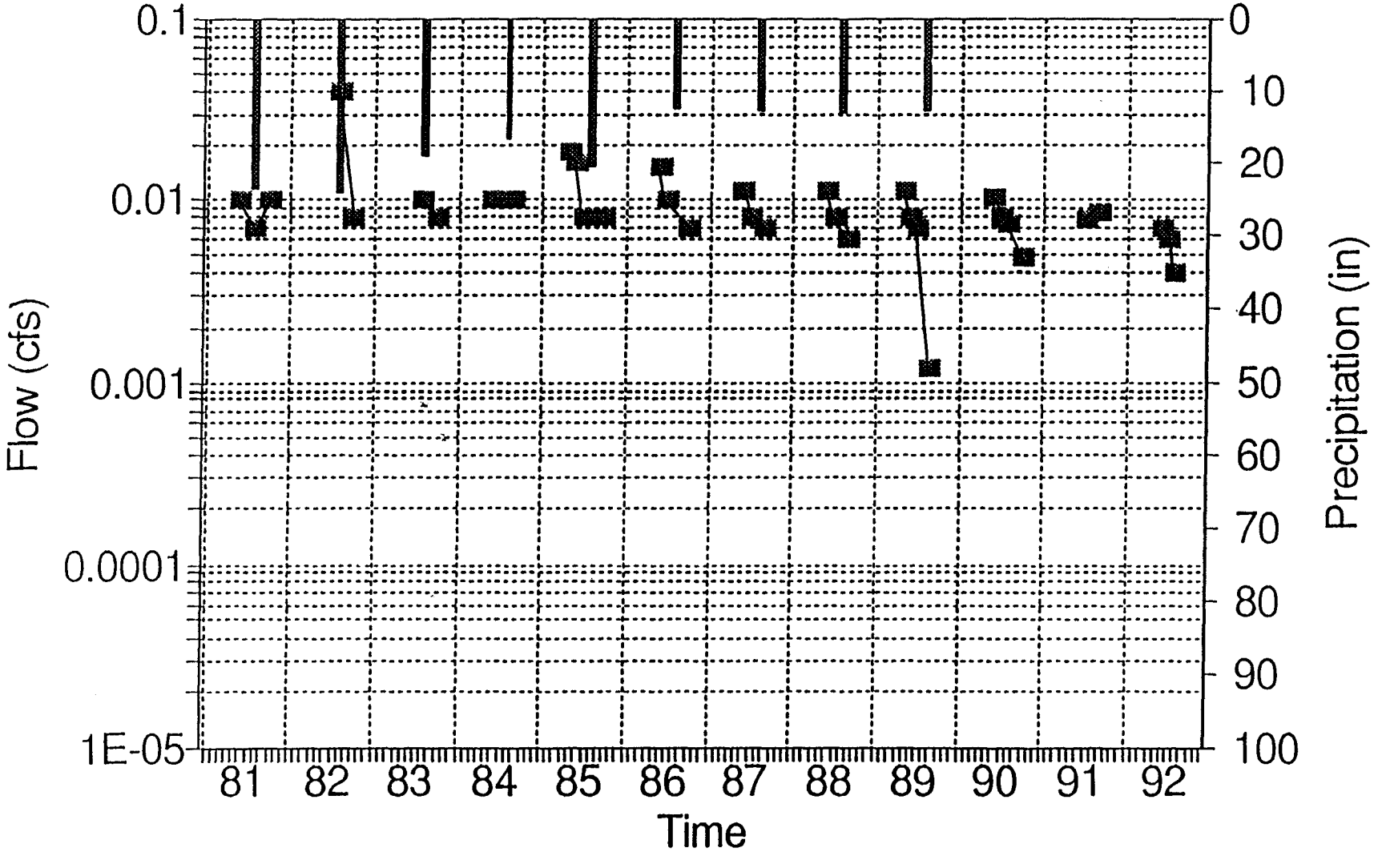


Figure 14

S36-23 Flow History



APPENDIX 731.111

Spill Prevention Control Plan

CONSULTANTS/ENGINEERS
HANSEN ALLEN & LUCE inc
SALT LAKE CITY, UTAH

SPILL PREVENTION
CONTROL AND COUNTERMEASURE PLAN
(SPCC PLAN)

Valley Camp of Utah, Inc.
Scofield Route
Helper, Utah 84526

December 1980

TABLE OF CONTENTS

LIST OF FIGURES

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN (SPCC PLAN)

for

Valley Camp of Utah, Inc.
Scofield Route
Helper, Utah 84526

1.0 INTRODUCTION

The Federal Water Pollution Control Act of 1972 requires the Administrator of the Environmental Protection Agency ("EPA"), with other Federal and State agencies, to enter into programs designed to prevent, reduce, or eliminate pollution of the navigable waters of the United States. On December 11, 1973, the EPA published regulations for the prevention of pollution of waters of the United States by oil emanating from non-transportation related onshore facilities. The regulations are identified as Title 40, Code of Federal Regulations, Part 112, (40 CFR, Part 112), "Oil Pollution Prevention - Non-Transportation Related Onshore and Offshore Facilities," and became effective on January 10, 1974.

The objective of these regulations is to prevent the discharge of oil in harmful quantities into the navigable waters of the United States or adjoining shorelines. The accomplishments of this objective requires an assessment of each facility for the possibility of any discharge of oil.

Where such potential exists, the regulations urge that (a) employees be adequately trained to reduce the number of human errors that often cause spills; (b) inspection procedures be implemented; (c) when appropriate, pollution prevention equipment be installed and maintained; and (d) secondary containment, if practical, be provided to contain any oil that may be spilled.

The facilities described in this plan are those of the Valley Camp of Utah, Inc. ("Valley Camp"), and are non-transportation related on-shore coal mining operations located in the State of Utah. Oil and gas products are transferred, stored, distributed and consumed in the operation and maintenance of equipment, machinery and vehicles associated with the mining of bituminous coal. A discharge or spill of oil from specific storage tanks located within these facilities, in sufficient quantities as defined in the federal regulations, might result in a harmful discharge into a navigable water of the United States. Accordingly, a Spill Prevention Control and Countermeasure Plan (SPCC Plan) has been prepared and implemented to minimize the potential for oil discharges and is included in this document.

2.0 SPILL PREVENTION CONTROL AND COUNTERMEASURE (SPCC) PLAN

2.1 Description of Oil Storage Tanks

Oil storage tanks at Valley Camp, Inc., facilities are shown on Figure 2-1, Valley Camp, Inc., - Oil Storage Tanks Inventory.

All tanks are in good condition and constructed of (Enter type of construction; ie, welded steel, riveted steel, etc.) welded steel

2.2 Design of Control and Countermeasure Structures

Oil storage tanks at Valley Camp, Inc., facilities will be located, when practical, in such a position that any potential oil discharge will be contained in an impoundment whose capacity is at least 25% greater than the maximum capacity of the tank or at least 25% greater than the maximum capacity of the largest tank in a group of tanks. A discharge device such as a gate valve may be installed at the lower end of the enclosure to periodically drain rainwater and snowmelt.

In the event it becomes necessary to drain rainwater and snowmelt from the enclosure, this will be done as follows:

- The run-off will be inspected to ensure compliance with applicable water quality standards and will not cause a harmful discharge into a stream;

Figure 2-1

Oil Storage Tanks Inventory
Valley Camp of Utah, Inc.

Tank Name & I.D. No.	Location	Capacity (Gal.)	Type
V.C. No. 1	Belina	10,000	Steel
V.C. No. 2	Utah #2	10,000	Steel
V.C. No. 3	Administrative office	10,000	Steel
V.C. No. 4	Utah #2	8,000	Steel
V.C. No. 5	Utah #2	4,000	Steel

Figure 2-1

Oil Storage Tanks Inventory
Valley Camp of Utah, Inc.

Tank Name & I.D. No.	Location	Capacity (Gal.)	Type

- The discharge device will be opened and then closed following the drainage by the Installation's Mine Superintendent, Shift Foreman, or other responsible personnel;

- The date and estimated volume of rainwater released will be recorded.

Where an impoundment exists which is also used for water quality control and has an overflow pipe which can or does discharge into a stream, the overflow pipe for such an impoundment will have an oil skimmer to prevent oil from discharging from the impoundment into a stream.

Where an impoundment is not practical, the oil storage tank(s) will be:

- Buried, only if the total facility aggregate capacity is less than 42,000 gallon or

- Relocated to a non-critical area, or

- Provided with a suitable enclosure around or under the tank, such as impervious dikes or metal drip pans.

All delivery of oil to the storage tank is by motor tank vehicle. Standard operating procedures are designed to prevent over-filling tanks. These include:

- Gauging of tank prior to unloading incoming product to ensure sufficient tank capacity to accept delivery.

- Motor tank vehicle drivers stand by unloading vehicles ready to shut down the unloading operation in case of malfunction.

Air escaping from the storage tank vent provides an audible indication that the tank is being filled. Cessation of this audible indication is a signal to shut down the unloading operation as either:

- The unloading tank is empty, or

- The tank is being overfilled.

Any small amount of oil discharge by overfilling a tank will be contained.

All gate valves will be equipped with a padlock. The areas where tanks are located are lighted during the dark hours. Supervisory personnel are on duty twenty-four (24) hours a day.

2.3 Inspection

All tanks, piping, valves, loading, unloading equipment, impoundments, skimmers, enclosures and/or dikes will be inspected by supervisory personnel quarterly, and routinely by operating personnel. If necessary, any corrective action will be promptly undertaken. A "Facilities Inspection Form" (See Figure 2-2) will be used for inspections made by supervisory personnel. A copy of each report will be filed with the SPCC Plan and maintained for three (3) years.

The Environmental Manager
Title, Name

will be accountable for oil spill prevention.

2.4 Training

The following training procedures will be provided:

- The SPCC Plan will be reviewed with plant-operating personnel by supervisory personnel as a part of the plant inspection procedure.

- New employees will be instructed in spill prevention procedures as part of their training.

Figure 2-2

Facilities Inspection Form
for
Valley Camp of Utah, Inc.
SPCC Plan

Inspection Date_____

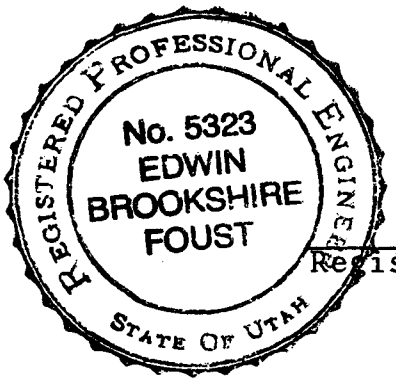
Facility Name and/or I.D. Number	Facility Location	Facility Capacity (Gal.)	Facility Type	Facility Inspection Comments

Inspected By_____

NOTE: Inspections will be performed quarterly and the inspection form filed with the SPCC Plan.

The original copy of the SPCC Plan will be kept in the Valley Camp of Utah, Inc., office located at Scofield Route, Helper, Utah 84526.

The above Plan has been reviewed by and certified by



Registered Professional Engineer

Federal Register

TUESDAY, DECEMBER 11, 1973
WASHINGTON, D.C.

Volume 38 ■ Number 237

PART II

ENVIRONMENTAL PROTECTION AGENCY

■

OIL POLLUTION PREVENTION

Non-Transportation Related Onshore and Offshore Facilities

Title 40—Protection of the Environment

CHAPTER I—ENVIRONMENTAL PROTECTION AGENCY

SUBCHAPTER D—WATER PROGRAMS

PART 112—OIL POLLUTION PREVENTION

Non-transportation Related Onshore and Offshore Facilities

Notice of proposed rule making was published on July 19, 1973, containing proposed regulations, required by an pursuant to section 311(j)(1)(C) of the Federal Water Pollution Control Act, as amended (86 Stat. 868, 33 U.S.C. 1251 et seq.), (FWPCA), to prevent discharges of oil into the navigable waters of the United States and to contain such discharges if they occur. The proposed regulations endeavor to prevent such spills by establishing procedures, methods and equipment requirements of owners or operators of facilities engaged in drilling, producing, gathering, storing, processing, refining, transferring, distributing, or consuming oil.

Written comments on the proposed regulations were solicited and received from interested parties. In addition, a number of verbal comments on the proposal were also received. The written comments are on file at the Division of Oil and Hazardous Materials, Office of Water Program Operations, U.S. Environmental Protection Agency, Washington, D.C.

All of the comments have been given careful consideration and a number of changes have been made in the regulation. These changes incorporate either suggestions made in the comments or ideas initiated by the suggestions.

Some comments reflected a misunderstanding of the fundamental principles of the regulation, specifically as they applied to older facilities and marginal operations. During the development of the regulation it was recognized that no single design or operational standard can be prescribed for all non-transportation related facilities, since the equipment and operational procedures appropriate for one facility may not be appropriate for another because of factors such as function, location, and age of each facility. Also, new facilities could achieve a higher level of spill prevention than older facilities by the use of fail-safe design concepts and innovative spill prevention methods and procedures. It was concluded that older facilities and marginal operations could develop strong spill contingency plans and commit manpower, oil containment devices and removal equipment to compensate for inherent weaknesses in the spill prevention plan.

Appropriate changes were made in the regulation to simplify, clarify or correct deficiencies in the proposal.

A discussion of these changes, section by section follows:

A. *Section 112.1—General applicability.* Section 112.1(b), the "foreseeability provision", contained in 112.1(d)(4) was added to paragraph 112.1(b). As modified, the regulation applies to non-transportation-related onshore and offshore facilities which, due to their location, could reasonably be expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines.

Sections 112.1(b), 112.1(d)(4) and 112.3 are now consistent.

Section 112.1(d)(1) was expanded to further clarify the respective authorities of the Department of Transportation and the Environmental Protection Agency by referring to the Memorandum of Understanding between the Secretary of Transportation and the Administrator of the Environmental Protection Agency (Appendix).

Section 112.1(d)(2), the figure for barrels was converted to gallons, a unit of measure more familiar to the public, and now reads "42000 gallons."

Section 112.1(d)(3), exemption for facilities with nonburied tankage was extended to 1320 gallons in aggregate with no single tank larger than 660 gallons and applies to all oils, not just heating oil and motor fuel. Tanks of 660 gallons are the normal domestic code size for nonburied heating oil tanks. Buildings may have two such tanks. Facilities containing small quantities of oil other than motor fuel or heating oil would also be exempt, thus making this consistent with the definition of oil in § 112.2.

B. *Section 112.2—Definitions.* Section 112.2(1), the term "navigable waters" was expanded to the more descriptive definition used by the National Pollutant Discharge Elimination System.

Section 112.2(m), the U.S. Coast Guard definition of the term "vessel" was included. This term is used in the regulation and the definition is consistent with the Department of Transportation regulations.

C. *Section 112.3—Requirements for the preparation and implementation of spill prevention control and countermeasure plans.* A new paragraph (c) was added to § 112.3 which applies to mobile or portable facilities subject to the regulation. These facilities need not prepare a new Spill Prevention Control and Countermeasure Plan (SPCC Plan) each time the facility is moved to a new site, but may prepare a general plan, identifying good spill prevention engineering practices (as outlined in the guidelines, § 112.7), and implement these practices at each new location.

Section 112.3(a), (b) and (f) (which was § 112.3(e) in the proposed rule making) have been modified to allow extensions of time beyond the normally specified periods to apply to the preparation of plans as well as to their implementation and to remove the time limitation of one year for extensions. Extensions may be allowed for whatever period of time considered reasonable by the Regional Administrator.

Section 112.3(e) (which was § 112.3(d) in the proposed rule making) was modified to require the maintenance of the SPCC Plan for inspection at the facility only if the facility was normally manned. If the facility is unmanned, the Plan may be kept at the nearest field office.

Section 112.3(f)(1) (§ 112.3(e)(1) in the proposed regulation) was changed to include the nonavailability of qualified personnel as a reason for the Regional Administrator granting an extension of time.

D. *Section 112.4—Amendment of spill prevention control and countermeasure plans by Regional Administrator.* Section 112.4(a)(11), permits the Regional Administrator to require that the owner or operator furnish additional information to EPA after one or more spill event has occurred. The change limits the request for additional information to that pertinent to the SPCC Plan or to the pollution incident.

Section 112.4(b) now reads "Section 112.4 * * *", not "This subsection * * *"

Section 112.4(e) allowed the Regional Administrator to require amendments to SPCC Plans and specifies that the amendment must be incorporated in the Plan within 30 days unless the Regional Administrator specifies an earlier effective date. The change allows the Regional Administrator to specify any appropriate date that is reasonable.

Section 112.4(f). A new § 112.4(f) has been added which provides for an appeal by an owner or operator from a decision rendered by the Regional Administrator on an amendment to an SPCC Plan. The appeal is made to the Administrator of EPA and the paragraph outlines the procedures for making such an appeal.

E. *Section 112.5—Amendment of spill prevention control and countermeasure plans by owners or operators.* Section 112.5(b) required the owner or operator to amend the SPCC Plan every three years. The amendment required the incorporation of any new, field-proven technology and had to be certified by a Professional Engineer.

The change requires that the owner or operator review the Plan every three years to see if it needs amendment. New technology need be incorporated only if it will significantly reduce the likelihood of a spill. The change will prevent frivolous retrofitting of equipment to facilities whose prevention plans are working successfully, and will not require engineering certification unless an amendment is necessary.

Section 112.5(c), this paragraph required that the owner or operator amend his SPCC Plan when his facility became subject to §112.4 (amendment by the Regional Administrator). This paragraph has been removed. It is inconsistent to require the owner or operator to independently amend the Plan while the Regional Administrator is reviewing it for possible amendment.

F. *Section 112.6—Civil penalties.* There are no changes in this section.

G. *Section 112.7—Guidelines for the preparation and implementation of a spill prevention control and countermeasure plan.* Numerous changes have been made in the guidelines section; the changes have been primarily:

1. To correct the use of language inconsistent with guidelines. For example, the word "shall" has been changed to "should" in § 112.7(a) through (e).

2. To give the engineer preparing the Plan greater latitude to use alternative methods better suited to a given facility or local conditions.

3. To cover facilities subject to the regulation, but for which no guidelines were previously given. This category includes such things as mobile facilities, and drilling and workover rigs.

In addition, wording was changed to differentiate between periodic observations by operating personnel and formal inspections with attendant record keeping.

These regulations shall become effective January 10, 1974.

Dated: November 27, 1973.

JOHN QUARLES,
Acting Administrator.

A new Part 112 would be added to subchapter D, Chapter I of Title 40, Code of Federal Regulations as follows:

Sec.
112.1 General applicability.
112.2 Definitions.
112.3 Requirements for preparation and implementation of Spill Prevention Control and Countermeasure plans.
112.4 Amendment of Spill Prevention Control and Countermeasure Plans by Regional Administrator.
112.5 Admendment of Spill Prevention Control and Countermeasure Plans by owners or operators.
112.6 Civil penalties.
112.7 Guidelines for the preparation and implementation of a Spill Prevention Control and Countermeasure Plan.
Appendix Memorandum of Understanding Between the Secretary of the Department of Transportation and the Administrator of the Environmental Protection Agency. Section II—Definitions.

AUTHORITY: Secs. 311(j)(1)(C), 311(j)(2), 501(a), Federal Water Pollution Control Act (Sec. 2, Pub. L. 92-500, 86 Stat. 816 et seq. (33 U.S.C. 1251 et seq.)); Sec. 4(b), Pub. L. 92-500, 86 Stat. 897; 5 U.S.C. Reorg. Plan of 1970 No. 3 (1970), 35 FR 15623, 3 CFR 1966-1970 Comp.; E.O. 11735, 38 FR 21243, 3 CFR.

§ 112.1 General applicability.

(a) This part establishes procedures, methods and equipment and other requirements for equipment to prevent the discharge of oil from non-transportation-related onshore and offshore facilities into or upon the navigable waters of the United States or adjoining shorelines.

(b) Except as provided in paragraph (d) of this section, this part applies to owners or operators of non-transportation-related onshore and offshore facilities engaged in drilling, producing, gathering, storing, processing, refining, transferring, distributing or consuming oil and oil products, and which, due to their location, could reasonably be expected to discharge oil in harmful quantities, as defined in Part 110 of this chapter, into or upon the navigable waters of the United States or adjoining shorelines.

(c) As provided in sec. 313 (86 Stat. 875) departments, agencies, and instrumentalities of the Federal government are subject to these regulations to the same extent as any person, except for the provisions of § 112.6.

(d) This part does not apply to:

(1) Equipment or operations of vessels or transportation-related onshore and offshore facilities which are subject to authority and control of the Department of Transportation, as defined in the Memorandum of Understanding between the Secretary of Transportation and the Administrator of the Environmental Protection Agency, dated November 24, 1971, 36 FR 24000.

(2) Facilities which have an aggregate storage of 1320 gallons or less of oil, provided no single container has a capacity in excess of 660 gallons.

(3) Facilities which have a total storage capacity of 42000 gallons or less of oil and such total storage capacity is buried underground.

(4) Non-transportation-related onshore and offshore facilities, which, due to their location, could not reasonably be expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines.

(e) This part provides for the preparation and implementation of Spill Prevention Control and Countermeasure Plans prepared in accordance with § 112.7, designed to complement existing laws, regulations, rules, standards, policies and procedures pertaining to safety standards, fire prevention and pollution prevention rules, so as to form a comprehensive balanced Federal/State spill prevention program to minimize the potential for oil discharges. Compliance with this part does not in any way relieve the owner or operator of an onshore or an offshore facility from compliance with other Federal, State or local laws.

§ 112.2 Definitions.

For the purposes of this part:

(a) "Oil" means oil of any kind or in any form, including, but not limited to petroleum, fuel oil, sludge, oil refuse and oil mixed with wastes other than dredged spoil.

(b) "Discharge" includes but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying or dumping. For purposes of this part, the term "discharge" shall not include any discharge of oil which is authorized by a permit issued pursuant to Section 13 of the River and Harbor Act of 1899 (30 Stat. 1121, 33 U.S.C. 407), or Sections 402 or 405 of the FWPCA Amendments of 1972 (86 Stat. 816 et seq., 33 U.S.C. 1251 et seq.).

(c) "Onshore facility" means any facility of any kind located in, on, or under any land within the United States, other than submerged lands, which is not a transportation-related facility.

(d) "Offshore facility" means any facility of any kind located in, on, or under any of the navigable waters of the United States, which is not a transportation-related facility.

(e) "Owner or operator" means any person owning or operating an onshore facility or an offshore facility, and in the case of any abandoned offshore facility, the person who owned or operated such facility immediately prior to such abandonment.

(f) "Person" includes an individual, firm, corporation, association, and a partnership.

(g) "Regional Administrator" means the Regional Administrator of the Environmental Protection Agency, or his designee, in and for the Region in which the facility is located.

(h) "Transportation-related" and "non-transportation-related" as applied to an onshore or offshore facility, are defined in the Memorandum of Understanding between the Secretary of Transportation and the Administrator of the Environmental Protection Agency, dated November 24, 1971, 36 FR 24080.

(i) "Spill event" means a discharge of oil into or upon the navigable waters of the United States or adjoining shorelines in harmful quantities, as defined at 40 CFR Part 110.

(j) "United States" means the States, the District of Columbia, the Commonwealth of Puerto Rico, the Canal Zone, Guam, American Samoa, the Virgin Islands, and the Trust Territory of the Pacific Islands.

(k) The term "navigable waters" of the United States means "navigable waters" as defined in section 502(7) of the FWPCA, and includes:

(1) all navigable waters of the United States, as defined in judicial decisions prior to passage of the 1972 Amendments to the FWPCA (Pub. L. 92-500), and tributaries of such waters;

(2) interstate waters;

(3) intrastate lakes, rivers, and streams which are utilized by interstate travelers for recreational or other purposes; and

(4) intrastate lakes, rivers, and streams from which fish or shellfish are taken and sold in interstate commerce.

(l) "Vessel" means every description of watercraft or other artificial contrivance used, or capable of being used as a means of transportation on water other than a public vessel.

§ 112.3 Requirements for preparation and implementation of Spill Prevention Control and Countermeasure Plans.

(a) Owners or operators of onshore and offshore facilities in operation on or before the effective date of this part that have discharged or could reasonably be expected to discharge oil in harmful quantities, as defined in 40 CFR Part 110, into or upon the navigable waters of the United States or adjoining shorelines shall prepare a Spill Prevention Control and Countermeasure Plan (hereinafter "SPCC Plan"), in accordance with § 112.7. Except as provided for in paragraph (f) of this section, such SPCC Plan shall be prepared within six months after the effective date of this part and shall be fully implemented as soon as possible, but not later than one year after the effective date of this part.

(b) Owners or operators of onshore and offshore facilities that become operational after the effective date of this part, and that have discharged or could reasonably be expected to discharge oil in harmful quantities, as defined in 40 CFR Part 110, into or upon the navigable waters of the United States or adjoining shorelines, shall prepare an SPCC Plan in accordance with § 112.7. Except as provided for in paragraph (f) of this section, such SPCC Plan shall be prepared within six months after the date such facility begins operations and shall be fully implemented as soon as possible, but not later than one year after such facility begins operations.

(c) Onshore and offshore mobile or portable facilities such as onshore drilling or workover rigs, barge mounted offshore drilling or workover rigs, and portable fueling facilities shall prepare and implement an SPCC Plan as required by paragraphs (a), (b) and (d) of this section. The owner or operator of such facility need not prepare and implement a new SPCC Plan each time the facility is moved to a new site. The SPCC Plan for mobile facilities should be prepared in accordance with § 112.7, using good engineering practice, and when the mobile facility is moved it should be located and installed using spill prevention practices outlined in the SPCC Plan for the facility. The SPCC Plan shall only apply while the facility is in a fixed (non transportation) operating mode.

(d) No SPCC Plan shall be effective to satisfy the requirements of this part unless it has been reviewed by a Registered Professional Engineer and certified to by such Professional Engineer. By means of this certification the engineer, having examined the facility and being familiar with the provisions of this part, shall attest that the SPCC Plan has been prepared in accordance with good engineering practices. Such certification shall in no way relieve the owner or operator of an onshore or offshore facility of his duty to prepare and fully implement such Plan in accordance with § 112.7, as required by paragraphs (a), (b) and (c) of this section.

(e) Owners or operators of a facility for which an SPCC Plan is required pursuant to paragraphs (a), (b) or (c) of this section shall maintain a complete copy of the Plan at such facility if the facility is normally attended at least 8 hours per day, or at the nearest field office if the facility is not so attended, and shall make such Plan available to the Regional Administrator for on-site review during normal working hours.

(f) Extensions of time.

(1) The Regional Administrator may authorize an extension of time for the preparation and full implementation of an SPCC Plan beyond the time permitted for the preparation and implementation of an SPCC Plan pursuant to paragraphs (a), (b) or (c) of this section where he finds that the owner or operator of a facility subject to paragraphs (a), (b) or (c) of this section cannot fully comply with the requirements of this part as a result of either nonavailability of qualified personnel, or delays in construction or equipment delivery beyond the control and without the fault of such owner or operator or their respective agents or employees.

(2) Any owner or operator seeking an extension of time pursuant to paragraph (f) (1) of this section may submit a letter of request to the Regional Administrator. Such letter shall include:

(i) A complete copy of the SPCC Plan, if completed;

(ii) A full explanation of the cause for any such delay and the specific aspects of the SPCC Plan affected by the delay;

(iii) A full discussion of actions being taken or contemplated to minimize or mitigate such delay;

(iv) A proposed time schedule for the implementation of any corrective actions being taken or contemplated, including interim dates for completion of tests or studies, installation and operation of any necessary equipment or other preventive measures.

In addition, such owner or operator may present additional oral or written statements in support of his letter of request.

(3) The submission of a letter of request for extension of time pursuant to paragraph (f) (2) of this section shall in no way relieve the owner or operator from his obligation to comply with the requirements of § 112.3 (a), (b) or (c). Where an extension of time is authorized by the Regional Administrator for particular equipment or other specific aspects of the SPCC Plan, such extension shall in no way affect the owner's or operator's obligation to comply with the requirements of § 112.3 (a), (b) or (c) with respect to other equipment or other specific aspects of the SPCC Plan for which an extension of time has not been expressly authorized.

§ 112.4 Amendment of SPCC Plans by Regional Administrator.

(a) Notwithstanding compliance with § 112.3, whenever a facility subject to § 112.3 (a), (b) or (c) has: Discharged more than 1,000 U.S. gallons of oil into or upon the navigable waters of the United States or adjoining shorelines in a single spill event, or discharged oil in harmful quantities, as defined in 40 CFR Part 110, into or upon the navigable waters of the United States or adjoining shorelines in two spill events, reportable under section 311(b)(5) of the FWPCA, occurring within any twelve month period, the owner or operator of such facility shall submit to the Regional Administrator, within 60 days from the time such facility becomes subject to this section, the following:

(1) Name of the facility;

(2) Name(s) of the owner or operator of the facility;

(3) Location of the facility;

(4) Date and year of initial facility operation;

(5) Maximum storage or handling capacity of the facility and normal daily throughput;

(6) Description of the facility, including maps, flow diagrams, and topographical maps;

(7) A complete copy of the SPCC Plan with any amendments;

(8) The cause(s) of such spill, including a failure analysis of system or subsystem in which the failure occurred;

(9) The corrective actions and/or countermeasures taken, including an adequate description of equipment repairs and/or replacements;

(10) Additional preventive measures taken or contemplated to minimize the possibility of recurrence;

(11) Such other information as the Regional Administrator may reasonably require pertinent to the Plan or spill event.

(b) Section 112.4 shall not apply until the expiration of the time permitted for the preparation and implementation of an SPCC Plan pursuant to § 112.3 (a), (b), (c) and (f).

(c) A complete copy of all information provided to the Regional Administrator pursuant to paragraph (a) of this section shall be sent at the same time to the State agency in charge of water pollution control activities in and for the State in which the facility is located. Upon receipt of such information such State agency may conduct a review and make recommendations to the Regional Administrator as to further procedures, methods, equipment and other requirements for equipment necessary to prevent and to contain discharges of oil from such facility.

(d) After review of the SPCC Plan for a facility subject to paragraph (a) of this section, together with all other information submitted by the owner or operator of such facility, and by the State agency under paragraph (c) of this section, the Regional Administrator may require the owner or operator of such facility to amend the SPCC Plan if he finds that the Plan does not meet the requirements of this part or that the amendment of the Plan is necessary to prevent and to contain discharges of oil from such facility.

(e) When the Regional Administrator proposes to require an amendment to the SPCC Plan, he shall notify the facility operator by certified mail addressed to, or by personal delivery to, the facility owner or operator, that he proposes to require an amendment to the Plan, and shall specify the terms of such amendment. If the facility owner or operator is a corporation, a copy of such notice shall also be mailed to the registered agent, if any, of such corporation in the State where such facility is located. Within 30 days from receipt of such notice, the facility owner or operator may submit written information, views, and arguments on the amendment. After considering all relevant material presented, the Regional Administrator shall notify the facility owner or operator of any amendment required or shall rescind the notice. The amendment required by the Regional Administrator shall become part of the Plan 30 days

after such notice, unless the Regional Administrator, for good cause, shall specify another effective date. The owner or operator of the facility shall implement the amendment of the Plan as soon as possible, but not later than six months after the amendment becomes part of the Plan unless the Regional Administrator specifies another date.

(f) An owner or operator may appeal a decision made by the Regional Administrator requiring an amendment to an SPCC Plan. The appeal shall be made to the Administrator of the United States Environmental Protection Agency and must be made in writing within 30 days of receipt of the notice from the Regional Administrator requiring the amendment. A complete copy of the appeal must be sent to the Regional Administrator at the time the appeal is made. The appeal shall contain a clear and concise statement of the issues and points of fact in the case. It may also contain additional information which the owner or operator wishes to present in support of his argument. The Administrator or his designee may request additional information from the owner or operator, or from any other person. The Administrator or his designee may request additional information from the owner or operator, or from any other person. The Administrator or his designee shall render a decision within 60 days of receiving the appeal and shall notify the owner or operator of his decision.

§ 112.5 Amendment of Spill Prevention Control and Countermeasure Plans by owners or operators.

(a) Owners or operators of facilities subject to § 112.3 (a), (b) or (c) shall amend the SPCC Plan for such facility in accordance with § 112.7 whenever there is a change in facility design, construction, operation or maintenance which materially affects the facility's potential for the discharge of oil into or upon the navigable waters of the United States or adjoining shorelines. Such amendments shall be fully implemented as soon as possible, but not later than six months after such change occurs.

(b) Notwithstanding compliance with paragraph (a) of this section, owners and operators of facilities subject to § 112.3 (a), (b) or (c) shall complete a review and evaluation of the SPCC Plan at least once every three years from the date such facility becomes subject to this part. As a result of this review and evaluation, the owner or operator shall amend the SPCC Plan within six months of the review to include more effective prevention and control technology if: (1) Such technology will significantly reduce the likelihood of a spill event from the facility, and (2) if such technology has been field-proven at the time of the review.

(c) No amendment to an SPCC Plan shall be effective to satisfy the requirements of this section unless it has been certified by a Professional Engineer in accordance with § 112.3(d).

§ 112.6 Civil penalties.

Owners or operators of facilities subject to § 112.3 (a), (b) or (c) who violate the requirements of this part by failing or refusing to comply with any of the provisions of § 112.3, § 112.4, or § 112.5 shall be liable for a civil penalty of not more than $5,000 for each day that such violation continues. The Regional Administrator may assess and compromise such civil penalty. No penalty shall be assessed until the owner or operator shall have been given notice and an opportunity for hearing.

§ 112.7 Guidelines for the preparation and implementation of a Spill Prevention Control and Countermeasure Plan.

The SPCC Plan shall be a carefully thought-out plan, prepared in accordance with good engineering practices, and which has the full approval of management at a level with authority to commit the necessary resources. If the plan calls for additional facilities or procedures, methods, or equipment not yet fully operational, these items should be discussed in separate paragraphs, and the details of installation and operational start-up should be explained separately. The complete SPCC Plan shall follow the sequence outlined below, and include a discussion of the facility's conformance with the appropriate guidelines listed:

(a) A facility which has experienced one or more spill events within twelve months prior to the effective date of this part should include a written description of each such spill, corrective action taken and plans for preventing recurrence.

(b) Where experience indicates a reasonable potential for equipment failure (such as tank overflow, rupture, or leakage), the plan should include a prediction of the direction, rate of flow, and total quantity of oil which could be discharged from the facility as a result of each major type of failure.

(c) Appropriate containment and/or diversionary structures or equipment to prevent discharged oil from reaching a navigable water course should be provided. One of the following preventive systems or its equivalent should be used as a minimum:

(1) Onshore facilities.

(i) Dikes, berms or retaining walls sufficiently impervious to contain spilled oil

(ii) Curbing

(iii) Culverting, gutters or other drainage systems

(iv) Weirs, booms or other barriers

(v) Spill diversion ponds

(vi) Retention ponds

(vii) Sorbent materials

(2) Offshore facilities.

(i) Curbing, drip pans

(ii) Sumps and collection systems

(d) When it is determined that the installation of structures or equipment listed in § 112.7(c) to prevent discharged oil from reaching the navigable waters is not practicable from any onshore or offshore facility, the owner or operator should clearly demonstrate such impracticability and provide the following:

(1) A strong oil spill contingency plan following the provision of 40 CFR Part 109.

(2) A written commitment of manpower, equipment and materials required to expeditiously control and remove any harmful quantity of oil discharged.

(e) In addition to the minimal prevention standards listed under § 112.7(c), sections of the Plan should include a complete discussion of conformance with the following applicable guidelines or other effective spill prevention and containment procedures (or, if more stringent, with State rules, regulations or guidelines):

(1) *Facility drainage (onshore); (excluding production facilities).* (i) Drainage from diked storage areas should be restrained by valves or other positive means to prevent a spill or other excessive leakage of oil into the drainage system or inplant effluent treatment system, except where plan systems are designed to handle such leakage. Dike areas may be emptied by pumps or ejectors; however, these should be manually activated and the condition of the accumulation should be examined before starting to be sure no oil will be discharged into the water.

(ii) Flapper-type drain valves should not be used to drain diked areas. Valves used for the drainage of diked areas should, as far as practical, be of manual, open-and-closed design. When plant drainage drains directly into water courses and not into wastewater treatment plants, retained storm water should be inspected as provided in paragraph (e)(2)(iii) (B, C and D) before drainage.

(iii) Plant drainage systems from undiked areas should, if possible, flow into ponds, lagoons or catchment basins, designed to retain oil or return it to the facility. Catchment basins should not be located in areas subject to periodic flooding.

(iv) If plant drainage is not engineered as above, the final discharge of all in-plant ditches should be equipped with a diversion system that could, in the event of an uncontrolled spill, return the oil to the plant.

(v) Where drainage waters are treated in more than one treatment unit, natural hydraulic flow should be used. Where pump transfer is needed, two or more pumps should be provided, and at least one of the pumps should be permanently installed when such treatment is continuous. In any event, whatever techniques are used facility drainage systems should be adequately engineered to prevent oil from reaching navigable waters in the event of equipment failure or human error at the facility.

(2) *Bulk storage tanks (onshore); (excluding production facilities).* (i) N

tank should be used for the storage of oil unless its material and construction are compatible with the material stored and conditions of storage such as pressure and temperature, etc.

(ii) All bulk storage tank installations should be constructed so that a secondary means of containment is provided for the entire contents of the largest single tank plus sufficient freeboard to allow for precipitation. Diked areas should be sufficiently impervious to contain spilled oil. Dikes, containment curbs, and pits are commonly employed for this purpose, but they may not always be appropriate. An alternative system could consist of a complete drainage trench enclosure arranged so that a spill could terminate and be safely confined in an in-plant catchment basin or holding pond.

(iii) Drainage of rainwater from the diked area into a storm drain or an effluent discharge that empties into an open water course, lake, or pond, and bypassing the in-plant treatment system may be acceptable if:

(A) The bypass valve is normally sealed closed.

(B) Inspection of the run-off rain water ensures compliance with applicable water quality standards and will not cause a harmful discharge as defined in 40 CFR 110.

(C) The bypass valve is opened, and resealed following drainage under responsible supervision.

(D) Adequate records are kept of such events.

(iv) Buried metallic storage tanks represent a potential for undetected spills. A new buried installation should be protected from corrosion by coatings, cathodic protection or other effective methods compatible with local soil conditions. Such buried tanks should at least be subjected to regular pressure testing.

(v) Partially buried metallic tanks for the storage of oil should be avoided, unless the buried section of the shell is adequately coated, since partial burial in damp earth can cause rapid corrosion of metallic surfaces, especially at the earth/air interface.

(vi) Aboveground tanks should be subject to periodic integrity testing, taking into account tank design (floating roof, etc.) and using such techniques as hydrostatic testing, visual inspection or a system of non-destructive shell thickness testing. Comparison records should be kept where appropriate, and tank supports and foundations should be included in these inspections. In addition, the outside of the tank should frequently be observed by operating personnel for signs of deterioration, leaks which might cause a spill, or accumulation of oil inside diked areas.

(vii) To control leakage through defective internal heating coils, the following factors should be considered and applied, as appropriate.

(A) The steam return or exhaust lines from internal heating coils which discharge into an open water course should be monitored for contamination or passed through a settling tank, skimmer, or other separation or retention system.

(B) The feasibility of installing an external heating system should also be considered.

(viii) New and old tank installations should, as far as practical, be fail-safe engineered or updated into a fail-safe engineered installation to avoid spills. Consideration should be given to providing one or more of the following devices:

(A) High liquid level alarms with an audible or visual signal at a constantly manned operation or surveillance station; in smaller plants an audible air vent may suffice.

(B) Considering size and complexity of the facility, high liquid level pump cutoff devices set to stop flow at a predetermined tank content level.

(C) Direct audible or code signal communication between the tank gauger and the pumping station.

(D) A fast response system for determining the liquid level of each bulk storage tank such as digital computers, telepulse, or direct vision gauges or their equivalent.

(E) Liquid level sensing devices should be regularly tested to insure proper operation.

(ix) Plant effluents which are discharged into navigable waters should have disposal facilities observed frequently enough to detect possible system upsets that could cause an oil spill event.

(x) Visible oil leaks which result in a loss of oil from tank seams, gaskets, rivets and bolts sufficiently large to cause the accumulation of oil in diked areas should be promptly corrected.

(xi) Mobile or portable oil storage tanks (onshore) should be positioned or located so as to prevent spilled oil from reaching navigable waters. A secondary means of containment, such as dikes or catchment basins, should be furnished for the largest single compartment or tank. These facilities should be located where they will not be subject to periodic flooding or washout.

(3) *Facility transfer operations, pumping, and in-plant process (onshore); (excluding production facilities).* (i) Buried piping installations should have a protective wrapping and coating and should be cathodically protected if soil conditions warrant. If a section of buried line is exposed for any reason, it should be carefully examined for deterioration. If corrosion damage is found, additional examination and corrective action should be taken as indicated by the magnitude of the damage. An alternative would be the more frequent use of exposed pipe corridors or galleries.

(ii) When a pipeline is not in service, or in standby service for an extended time the terminal connection at the transfer point should be capped or blank-flanged, and marked as to origin.

(iii) Pipe supports should be properly designed to minimize abrasion and corrosion and allow for expansion and contraction.

(iv) All aboveground valves and pipelines should be subjected to regular examinations by operating personnel at which time the general condition of items, such as flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces should be assessed. In addition, periodic pressure testing may be warranted for piping in areas where facility drainage is such that a failure might lead to a spill event.

(v) Vehicular traffic granted entry into the facility should be warned verbally or by appropriate signs to be sure that the vehicle, because of its size, will not endanger above ground piping.

(4) *Facility tank car and tank truck loading/unloading rack (onshore).* (i) Tank car and tank truck loading/unloading procedures should meet the minimum requirements and regulation established by the Department of Transportation.

(ii) Where rack area drainage does not flow into a catchment basin or treatment facility designed to handle spills, a quick drainage system should be used for tank truck loading and unloading areas. The containment system should be designed to hold at least maximum capacity of any single compartment of a tank car or tank truck loaded or unloaded in the plant.

(iii) An interlocked warning light or physical barrier system, or warning signs, should be provided in loading/unloading areas to prevent vehicular departure before complete disconnect of flexible or fixed transfer lines.

(iv) Prior to filling and departure of any tank car or tank truck, the lowermost drain and all outlets of such vehicles should be closely examined for leakage, and if necessary, tightened, adjusted, or replaced to prevent liquid leakage while in transit.

(5) *Oil production facilities (onshore).* (i) *Definition.* An onshore production facility may include all wells, flowlines, separation equipment, storage facilities, gathering lines, and auxiliary non-transportation-related equipment and facilities in a single geographical oil or gas field operated by a single operator.

(ii) *Oil production facility (onshore) drainage.* (A) At tank batteries and central treating stations where an accidental discharge of oil would have a reasonable possibility of reaching navigable waters, the dikes or equivalent required under § 112.7(c)(1), should have drains closed and sealed at all times except when rainwater is being drained. Prior to drainage, the diked area should be inspected as provided in paragraph (e)(2)(iii) (B), C), and (D). Accumulated oil on the rainwater should be picked up and returned to storage or disposed of in accordance with approved methods.

(B) Field drainage ditches, road ditches, and oil traps, sumps or skimmers, if such exist, should be inspected at regularly scheduled intervals for accumulation of oil that may have escaped from small leaks. Any such accumulations should be removed.

(iii) *Oil production facility (onshore) bulk storage tanks.* (A) No tank should be used for the storage of oil unless its material and construction are compatible with the material stored and the conditions of storage.

(B) All tank battery and central treating plant installations should be provided with a secondary means of containment for the entire contents of the largest single tank if feasible, or alternate systems such as those outlined in § 112.7(c)(1). Drainage from undiked areas should be safely confined in a catchment basin or holding pond.

(C) All tanks containing oil should be visually examined by a competent person for condition and need for maintenance on a scheduled periodic basis. Such examination should include the foundation and supports of tanks that are above the surface of the ground.

(D) New and old tank battery installations should, as far as practical, be fail-safe engineered or updated into a fail-safe engineered installation to prevent spills. Consideration should be given to one or more of the following:

(1) Adequate tank capacity to assure that a tank will not overfill should a pumper/gauger be delayed in making his regular rounds.

(2) Overflow equalizing lines between tanks so that a full tank can overflow to an adjacent tank.

(3) Adequate vacuum protection to prevent tank collapse during a pipeline run.

(4) High level sensors to generate and transmit an alarm signal to the computer where facilities are a part of a computer production control system.

(iv) *Facility transfer operations, oil production facility (onshore).* (A) All above ground valves and pipelines should be examined periodically on a scheduled basis for general condition of items such as flange joints, valve glands and bodies, drip pans, pipeline supports, pumping well polish rod stuffing boxes, bleeder and gauge valves.

(B) Salt water (oil field brine) disposal facilities should be examined often, particularly following a sudden change in atmospheric temperature to detect possible system upsets that could cause an oil discharge.

(C) Production facilities should have a program of flowline maintenance to prevent spills from this source. The program should include periodic examinations, corrosion protection, flowline replacement, and adequate records, as appropriate, for the individual facility.

(6) *Oil drilling and workover facilities (onshore)* (i) Mobile drilling or workover equipment should be positioned or located so as to prevent spilled oil from reaching navigable waters.

(ii) Depending on the location, catchment basins or diversion structures may be necessary to intercept and contain spills of fuel, crude oil, or oily drilling fluids.

(iii) Before drilling below any casing string or during workover operations, a blowout prevention (BOP) assembly and well control system should be installed that is capable of controlling any well head pressure that is expected to be encountered while that BOP assembly is on the well. Casing and BOP installations should be in accordance with State regulatory agency requirements.

(7) *Oil drilling, production, or workover facilities (offshore).* (i) Definition: "An oil drilling, production or workover facility (offshore)" may include all drilling or workover equipment, wells, flowlines, gathering lines, platforms, and auxiliary nontransportation-related equipment and facilities in a single geographical oil or gas field operated by a single operator.

(ii) Oil drainage collection equipment should be used to prevent and control small oil spillage around pumps, glands, valves, flanges, expansion joints, hoses, drain lines, separators, treaters, tanks, and allied equipment. Drains on the facility should be controlled and directed toward a central collection sump or equivalent collection system sufficient to prevent discharges of oil into the navigable waters of the United States. Where drains and sumps are not practicable oil contained in collection equipment should be removed as often as necessary to prevent overflow.

(iii) For facilities employing a sump system, sump and drains should be adequately sized and a spare pump or equivalent method should be available to remove liquid from the sump and assure that oil does not escape. A regular scheduled preventive maintenance inspection and testing program should be employed to assure reliable operation of the liquid removal system and pump start-up device. Redundant automatic sump pumps and control devices may be required on some installations.

(iv) In areas where separators and treaters are equipped with dump valves whose predominant mode of failure is in the closed position and pollution risk is high, the facility should be specially equipped to prevent the escape of oil. This could be accomplished by extending the flare line to a diked area if the separator is near shore, equipping it with a high liquid level sensor that will automatically shut-in wells producing to the separator, parallel redundant dump valves, or other feasible alternatives to prevent oil discharges.

(v) Atmospheric storage or surge tanks should be equipped with high liquid level sensing devices or other acceptable alternatives to prevent oil discharges.

(vi) Pressure tanks should be equipped with high and low pressure sensing devices to activate an alarm and/or control the flow or other acceptable alternatives to prevent oil discharges.

(vii) Tanks should be equipped with suitable corrosion protection.

(viii) A written procedure for inspecting and testing pollution prevention equipment and systems should be prepared and maintained at the facility. Such procedures should be included as part of the SPCC Plan.

(ix) Testing and inspection of the pollution prevention equipment and systems at the facility should be conducted by the owner or operator on a scheduled periodic basis commensurate with the complexity, conditions and circumstances of the facility or other appropriate regulations.

(x) Surface and subsurface well shut-in valves and devices in use at the facility should be sufficiently described to determine method of activation or control, e.g., pressure differential, change in fluid or flow conditions, combination of pressure and flow, manual or remote control mechanisms. Detailed records for each well, while not necessarily part of the plan should be kept by the owner or operator.

(xi) Before drilling below any casing string, and during workover operations a blowout preventer (BOP) assembly and well control system should be installed that is capable of controlling any well head pressure that is expected to be encountered while that BOP assembly is on the well. Casing and BOP installations should be in accordance with State regulatory agency requirements.

(xii) Extraordinary well control measures should be provided should emergency conditions, including fire, loss of control and other abnormal conditions occur. The degree of control system redundancy should vary with hazard exposure and probable consequences of failure. It is recommended that surface shut-in systems have redundant or "fail close" valving. Subsurface safety valves may not be needed in producing wells that will not flow but should be installed as required by applicable State regulations.

(xiii) In order that there will be no misunderstanding of joint and separate duties and obligations to perform work in a safe and pollution free manner, written instructions should be prepared by the owner or operator for contractors and subcontractors to follow whenever contract activities include servicing a well or systems appurtenant to a well or pressure vessel. Such instructions and procedures should be maintained at the offshore production facility. Under certain circumstances and conditions such contractor activities may require the presence at the facility of an authorized representative of the owner or operator who would intervene when necessary to prevent a spill event.

(xiv) All manifolds (headers) should be equipped with check valves on individual flowlines.

(xv) If the shut-in well pressure is greater than the working pressure of the flowline and manifold valves up to and including the header valves associated with that individual flowline, the flowline should be equipped with a high pressure sensing device and shutin valve at the wellhead unless provided with a pressure relief system to prevent over pressuring.

(xvi) All pipelines appurtenant to the facility should be protected from corrosion. Methods used, such as protective coatings or cathodic protection, should be discussed.

(xvii) Sub-marine pipelines appurtenant to the facility should be adequately protected against environmental stresses and other activities such as fishing operations.

(xviii) Sub-marine pipelines appurtenant to the facility should be in good

operating condition at all times and inspected on a scheduled periodic basis for failures. Such inspections should be documented and maintained at the facility.

(8) *Inspections and records.* Inspections required by this part should be in accordance with written procedures developed for the facility by the owner or operator. These written procedures and a record of the inspections, signed by the appropriate supervisor or inspector, should be made part of the SPCC Plan and maintained for a period of three years.

(9) *Security (excluding oil production facilities).* (i) All plants handling, processing, and storing oil should be fully fenced, and entrance gates should be locked and/or guarded when the plant is not in production or is unattended.

(ii) The master flow and drain valves and any other valves that will permit direct outward flow of the tank's content to the surface should be securely locked in the closed position when in non-operating or non-standby status.

(iii) The starter control on all oil pumps should be locked in the "off" position or located at a site accessible only to authorized personnel when the pumps are in a non-operating or non-standby status.

(iv) The loading/unloading connections of oil pipelines should be securely capped or blank-flanged when not in service or standby service for an extended time. This security practice should also apply to pipelines that are emptied of liquid content either by draining or by inert gas pressure.

(v) Facility lighting should be commensurate with the type and location of the facility. Consideration should be given to: (A) Discovery of spills occurring during hours of darkness, both by operating personnel, if present, and by non-operating personnel (the general public, local police, etc.) and (B) prevention of spills occurring through acts of vandalism.

(10) *Personnel, training and spill prevention procedures.* (i) Owners or operators are responsible for properly instructing their personnel in the operation and maintenance of equipment to prevent the discharges of oil and applicable pollution control laws, rules and regulations.

(ii) Each applicable facility should have a designated person who is accountable for oil spill prevention and who reports to line management.

(iii) Owners or operators should schedule and conduct spill prevention briefings for their operating personnel at intervals frequent enough to assure adequate understanding of the SPCC Plan for that facility. Such briefings should highlight and describe known spill events or failures, malfunctioning components, and recently developed precautionary measures.

APPENDIX

Memorandum of Understanding between the Secretary of Transportation and the Administrator of the Environmental Protection Agency.

SECTION 2—DEFINITIONS

The Environmental Protection Agency and the Department of Transportation agree that for the purposes of Executive Order 11548, the term:

(1) "Non-transportation-related onshore and offshore facilities" means:

(A) Fixed onshore and offshore oil well drilling facilities including all equipment and appurtenances related thereto used in drilling operations for exploratory or development wells, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(B) Mobile onshore and offshore oil well drilling platforms, barges, trucks, or other mobile facilities including all equipment and appurtenances related thereto when such mobile facilities are fixed in position for the purpose of drilling operations for exploratory or development wells, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(C) Fixed onshore and offshore oil production structures, platforms, derricks, and rigs including all equipment and appurtenances related thereto, as well as completed wells and the wellhead separators, oil separators, and storage facilities used in the production of oil, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(D) Mobile onshore and offshore oil production facilities including all equipment and appurtenances related thereto as well as completed wells and wellhead equipment, piping from wellheads to oil separators, oil separators, and storage facilities used in the production of oil when such mobile facilities are fixed in position for the purpose of oil production operations, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(E) Oil refining facilities including all equipment and appurtenances related thereto as well as in-plant processing units, storage units, piping, drainage systems and waste treatment units used in the refining of oil, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(F) Oil storage facilities including all equipment and appurtenances related thereto as well as fixed bulk plant storage, terminal oil storage facilities, consumer storage, pumps and drainage systems used in the storage of oil, but excluding inline or breakout storage tanks needed for the continuous operation of a pipeline system and any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(G) Industrial, commercial, or public facilities which use oil, but excluding any terminal facility, process integrally associated with handling or transferring of oil in bulk to or from a vessel.

(H) Waste treatment facilities, in-plant pipelines, effluent disposal and storage tanks, but excluding terminal facilities located on vessels and terminal storage tanks and appurtenances for reception of oily ballast water or tank washings from vessels and associated systems for off-loading vessels.

(I) Loading racks, transfer hoses, loading arms and other equipment which are not appurtenant to a nontransportation-related facility or terminal facility and which are not used to transfer oil in bulk to or from highway vehicles or railroad cars.

(J) Highway vehicles and railroad cars which are used for the transport of oil exclusively within the confines of a nontransportation-related facility and which are not intended to transport oil in interstate or intrastate commerce.

(K) Pipeline systems which are used for the transport of oil exclusively within the confines of a nontransportation-related facility or terminal facility and which are not intended to transport oil in interstate or intrastate commerce, but excluding pipeline systems used to transfer oil in bulk to or from a vessel.

(2) "Transportation-related onshore and offshore facilities" means:

(A) Onshore and offshore terminal facilities including transfer hoses, loading arms and other equipment and appurtenances used for the purpose of handling or transferring oil in bulk to or from a vessel as well as storage tanks and appurtenances for the reception of oily ballast water or tank washings from vessels, but excluding terminal waste treatment facilities and terminal oil storage facilities.

(B) Transfer hoses, loading arms and other equipment appurtenant to a nontransportation-related facility which is used to transfer oil in bulk to or from a vessel.

(C) Interstate and intrastate onshore and offshore pipeline systems including pumps and appurtenances related thereto as well as in-line or breakout storage tanks needed for the continuous operation of a pipeline system, and pipelines from onshore and offshore oil production facilities, but excluding onshore and offshore piping from wellheads to oil separators and pipelines which are used for the transport of oil exclusively within the confines of a nontransportation-related facility or terminal facility and which are not intended to transport oil in interstate or intrastate commerce or to transfer oil in bulk to or from a vessel.

(D) Highway vehicles and railroad cars which are used for the transport of oil in interstate or intrastate commerce and the equipment and appurtenances related thereto, and equipment used for the fueling of locomotive units, as well as the rights-of-way on which they operate. Excluded are highway vehicles and railroad cars and motive power used exclusively within the confines of a nontransportation-related facility or terminal facility and which are not intended for use in interstate or intrastate commerce.

[FR Doc.73-25448 Filed 12-10-73;8:45 am]

APPENDIX 742.221a

Sediment Pond Calculations and Details

CONSULTANTS/ENGINEERS
HANSEN ALLEN & LUCE inc
SALT LAKE CITY, UTAH

HANSEN ALLEN & LUCE INC

CLIENT Valley Camp
PROJECT Sediment Pond Analysis
FEATURE Curve # Selection
PROJECT NO.

SHEET 1 OF 4
COMPUTED DWK
CHECKED
DATE 9/18/88

I - Curve Number Selection -

A - Hydrologic Soil Group

Ref: "Soils of Utah" - Agriculture Experiment Station - Bulletin 492, Utah State University, Logan, Utah. March 1975

Soils at the Utah No 2 Mine are defined as:

Soil	Hydrologic Soil Group	
Typic Argiborolls	C	Generally B:C for deeper soils and D for shallow soils.
Lithic Argiborolls		
Typic Haploborolls	B	

Soils at the Belina Mine are defined as:

Soil	Hydrologic Soil Group	
Argic Cryoborolls	B:C	Mainly B:C
Pachic Cryoborolls	A, B:C	
Cryic Paleborolls	B:C	

Assume hydrologic soil groups C for the whole area which should be conservative.

B - Vegetative cover and CN for Sage Grass Areas, & Forest Aspen Areas.

In undisturbed areas the vegetative cover consists of Sage/Grass cover complex and a Forest/Aspen cover complex. To be conservative assume the ground cover density to be only 25%.

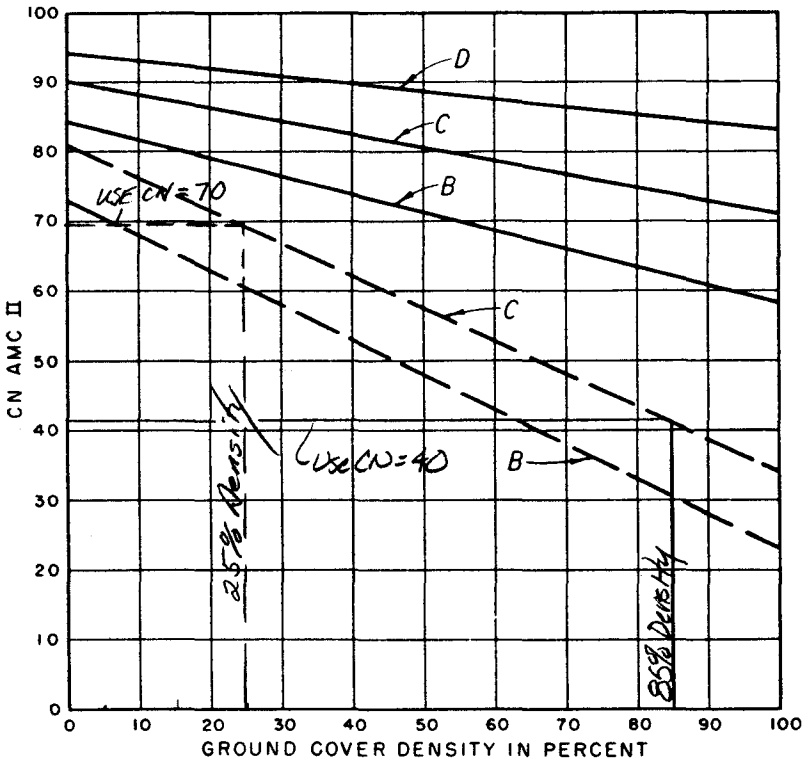
Use the attached figures taken from "Design of Small Dams" USBR (1977)

CN ≈ 75 for Sage/Grass, Soil Group C, Density 25%

CN ≈ 70 for Oak-Aspen, Soil Group C, Density 25%

C - Disturbed areas were assumed to be equivalent roads (dirt) (hard surface) in Table A-2 attached, taken from "Design of Small Dams," again assuming Hydrologic Soil Group C.

CN = 90 for Disturbed Areas.



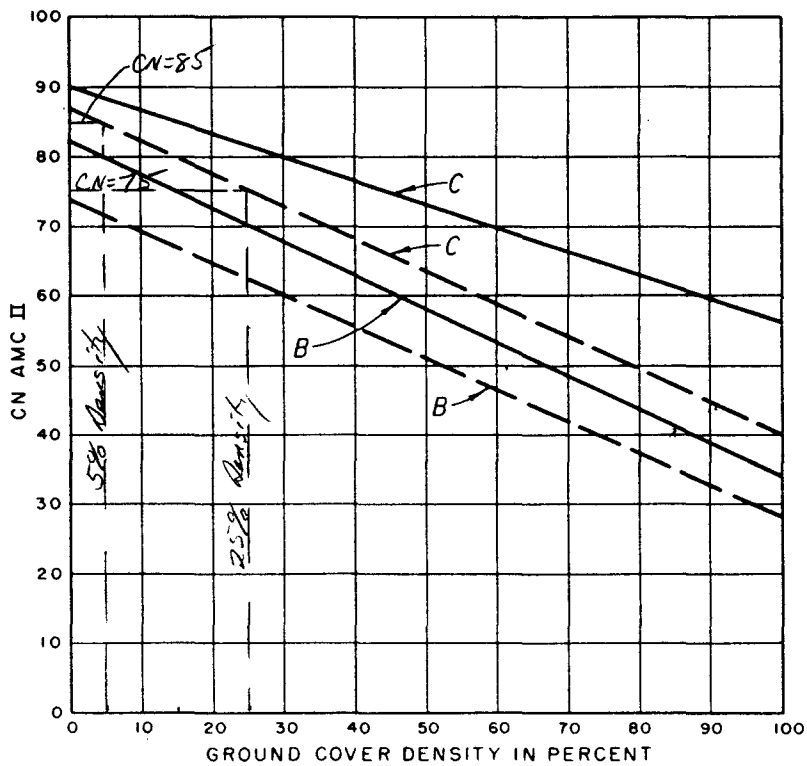


Figure A–3. Determining CN for forest-range in the western United States. 288–D–2824.
Taken from Design of Small Dams" USBR (1977)

TABLE A-2.—*Runoff curve numbers (CN) for hydrologic soil-cover complexes*
(FOR WATERSHED CONDITION AMC-II AND I_a=0.2S)[3]

Taken from "Design of Small Dams" USBR (1977)

Land use or cover	Treatment or practice	Hydrologic condition for infiltrating	Hydrologic soil group			
			A	B	C	D
Fallow	SR		77	86	91	94
Row crops	SR	Poor	72	81	88	91
	SR	Good	67	78	85	89
	C	Poor	70	79	84	88
	C	Good	65	75	82	86
	C&T	Poor	66	74	80	82
	C&T	Good	62	71	78	81
Small grain	SR	Poor	65	76	84	[illegible]
	SR	Good	63	75	83	[illegible]
	C	Poor	63	74	82	[illegible]
	C	Good	61	73	81	84
	C&T	Poor	61	72	79	82
	C&T	Good	59	70	78	81
Close-seeded legumes[1] or rotation meadow.	SR	Poor	66	77	85	89
	SR	Good	58	72	81	85
	C	Poor	64	75	83	85
	C	Good	55	69	78	83
	C&T	Poor	63	73	80	83
	C&T	Good	51	67	76	[illegible]
Pasture or range		Poor	68	79	86	[illegible]
		Fair	49	69	79	84
		Good	39	61	74	80
	C	Poor	47	67	81	88
	C	Fair	25	59	75	83
	C	Good	6	35	70	79
Meadow (permanent).		do	30	58	71	78
Woods (farm woodlots).		Poor	45	66	77	83
		Fair	36	60	73	79
		Good	25	55	70	[illegible]
Farmsteads			59	74	82	[illegible]
Roads (dirt)[2] (hard surface).[2]			72	82	87	89
			74	84	90	92

[1] Close-drilled or broadcast.
[2] Including right-of-way.
[3] See sec. A-5.
SR = Straight row.
C = Contoured.
T = Terraced.
C&T = Contoured and terraced.

(U.S. Soil Conservation Service.)

D - Reclaimed Areas were assumed to have a Sage-Grass cover with only 5% ground cover density.

CN = 85 for sage/Grass, 5% cover density, and hydrologic soil group C.

E - Paved Areas were assumed to be nearly impervious

CN = 98 was assumed.

II - Summary

Area Description	CN	
Forest/Aspen - Low density	70	
Sage/Grass	75	
Disturbed Areas	90	
Reclaimed	85	
Paved Areas	98	
Forest/Aspen - High Density	40	* Value used in Runoff Calc's for selected Ditches & Culverts

HANSEN ALLEN & LUCE INC

CLIENT Valley Camp
PROJECT Sediment Pond Analysis
FEATURE Runoff / Peak Flow Projections
PROJECT NO.

SHEET 1 OF 8
COMPUTED GJP
CHECKED
DATE 9/19/88

I- Drainage Basin Characteristics

A- Basin Areas

Sed Pond	Disturbed Area	Paved Area	Forested Aspen Area	Sage/Grass Area	Reclaimed Area	Total
001A	8.13	—	—	3.4	—	11.53
002A	6.3	0.82	—	—	—	7.12
003A	4.0	0.18	1.65	1.0	0.25	7.08
004A	17.3	—	15.1	—	4.7	37.1

B- Curve Numbers

Use:
- CN = 90 - Disturbed Areas
- CN = 98 - Paved Areas
- CN = 70 - Forest & Aspen
- CN = 75 - Sage - Grass
- CN = 85 - Reclaimed Areas.

} See Calculations 9/18/88 for Justification.

Volume Wt. Curve #5 -
10yr-24hr Precip = 2.45 inches
25yr-24hr Precip = 2.92 inches

Pond	Area ac	CN	Runoff Depth Q inches 10yr 24hr.	Runoff Depth Q inches 25yr 24hr	Wt. CN Based on Volume
001A	8.13	90	1.486	1.911	86.4 ← 10yr ← Use
	3.4	75	0.622	0.909	86.3 ← 25yr
		WtQ-	1.23	1.616	Use 86.4
002A	6.3	90	1.486	1.911	91.2 ← 10yr
	0.82	98	2.221	2.689	91.0 ← 25yr
		WtQ	1.571	2.001	Use 91.2
003A	4.0	90	1.486	1.911	84.8 ← 10yr
	0.18	98	2.221	2.689	84.5 ← 25yr
	1.65	70	0.432	0.670	Use 85.0
	1.0	75	0.622	0.909	
	0.25	85	1.139	1.521	
		WtQ	1.125	1.486	
004A	17.3	90	1.486	1.911	82.3 ← 10yr
	15.1	70	0.432	0.670	82.6 ← 25yr
	4.7	85	0.754	1.521	Use 83.0
		WtQ	0.977	1.356	

C - Hydraulic Length ; Watershed Slope

Sed Pond	Hydraulic Length ft	Watershed Slope %
001A	2760	38.0
002A	860	17.8
003A	1100	32.
004A	2040	40

II - Runoff Volume - 10yr - 24hr event

P = 2.45 inches.

Sediment Pond	Area acres	Wt. CN	Runoff Depth in	Runoff Volume ac-ft
001A	11.53	86.4	1.229	1.18
002A	7.12	91.2	1.581	0.94
003A	7.08	85.0	1.139	0.67
004A	37.1	83.0	1.018	3.15

III - Peak Flow - 25-year 24-Hour Event

Sed Pond	Peak cfs See attached Printouts
001A	18.3
002A	13.7
003A	11.0
004A	52.0

PROJECT : VALLEY CAMP SEDIMENT POND 001A: 25-YR, 24-HR PEAK INFLOW

AREA= 11.5 ACRES
AVERAGE BASIN SLOPE= 38.0 PERCENT
CURVE NUMBER= 86.4
DESIGN STORM= 2.92 INCHES
STORM DURATION= 24.0 HOURS
HYDRAULIC LENGTH= 2760. FEET
MINIMUM INFILTRATION RATE= .00 IN/HR

TP= .1041 HOURS QPCFS= 83.80 CFS QPIN= 7.2073 INCHES
C3= 35.5247 ITERATIONS= 8 SCS 24-hour

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
7.35	.3143	.0000	.0000	.0	.00
7.37	.3156	.0000	.0000	4.2	.00
7.39	.3169	.0000	.0000	26.0	.00
7.41	.3183	.0000	.0000	55.6	.00
7.43	.3196	.0000	.0000	76.9	.00
7.45	.3209	.0000	.0000	83.8	.00
7.47	.3223	.0000	.0000	78.5	.00
7.49	.3236	.0000	.0000	66.3	.00
7.51	.3248	.0000	.0000	51.8	.00
7.53	.3259	.0000	.0000	38.2	.00
7.55	.3270	.0000	.0000	27.0	.00
7.58	.3281	.0001	.0000	18.3	.00
7.60	.3292	.0001	.0000	12.1	.00
7.62	.3303	.0002	.0000	7.7	.00
7.64	.3314	.0002	.0000	4.9	.00
7.66	.3325	.0002	.0000	3.0	.00
7.68	.3336	.0002	.0000	1.8	.00
7.70	.3346	.0002	.0000	1.1	.01
7.72	.3357	.0003	.0000	.6	.01
7.74	.3368	.0003	.0000	.4	.01
7.76	.3379	.0003	.0000	.2	.01
7.78	.3390	.0004	.0000	.1	.01
7.80	.3401	.0004	.0000	.0	.01
11.88	1.6770	.6319	.0327	.0	16.72
11.90	1.7232	.6651	.0331	.0	17.03
11.93	1.7694	.6986	.0335	.0	17.33
11.95	1.8156	.7325	.0339	.0	17.61
11.97	1.8617	.7667	.0343	.0	17.88
11.99	1.9079	.8013	.0346	.0	18.13
12.01	1.9394	.8251	.0238	.0	18.32
12.03	1.9481	.8318	.0066	.0	18.19
12.05	1.9569	.8384	.0066	.0	17.33
12.07	1.9656	.8451	.0067	.0	15.70
12.09	1.9744	.8517	.0067	.0	13.60

PROJECT : VALLEY CAMP SEDIMENT POND 001A: 25-YR, 24-HR PEAK INFLOW
(Continued)

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
12.11	1.9832	.8584	.0067	.0	11.40
12.13	1.9919	.8651	.0067	.0	9.41

HYDROGRAPH PEAK= 18.32 cfs
TIME TO PEAK= 12.01 Hours
RUNOFF VOLUME= 1.56 Acre-Feet

PROJECT : VALLEY CAMP SEDIMENT POND 002A: 25-YR, 24-HR PEAK INFLOW

AREA= 7.1 ACRES
AVERAGE BASIN SLOPE= 17.8 PERCENT
CURVE NUMBER= 91.2
DESIGN STORM= 2.92 INCHES
STORM DURATION= 24.0 HOURS
HYDRAULIC LENGTH= 860. FEET
MINIMUM INFILTRATION RATE= .00 IN/HR

TP= .0495 HOURS QPCFS= 108.75 CFS QPIN=15.1465 INCHES
C3= 74.6572 ITERATIONS= 8 SCS 24-hour

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
5.19	.1920	.0000	.0000	.0	.00
5.21	.1932	.0000	.0000	33.8	.00
5.23	.1943	.0000	.0000	99.8	.00
5.25	.1955	.0000	.0000	101.9	.00
5.27	.1966	.0000	.0000	67.3	.00
5.29	.1978	.0000	.0000	35.0	.00
5.31	.1989	.0000	.0000	15.7	.00
5.33	.2001	.0000	.0000	6.3	.00
5.35	.2012	.0000	.0000	2.4	.00
5.37	.2024	.0000	.0000	.8	.00
5.39	.2036	.0001	.0000	.3	.00
5.41	.2047	.0001	.0000	.0	.00
11.88	1.6698	.8932	.0370	.0	13.21
11.90	1.7137	.9304	.0372	.0	13.31
11.92	1.7577	.9679	.0374	.0	13.40
11.94	1.8016	1.0055	.0377	.0	13.49
11.96	1.8456	1.0434	.0379	.0	13.58
11.98	1.8895	1.0814	.0381	.0	13.66
12.00	1.9334	1.1197	.0383	.0	13.74
12.02	1.9438	1.1288	.0091	.0	12.82
12.04	1.9521	1.1360	.0073	.0	9.89
12.06	1.9605	1.1433	.0073	.0	6.77
12.08	1.9688	1.1506	.0073	.0	4.63
12.10	1.9771	1.1579	.0073	.0	3.50
12.12	1.9854	1.1652	.0073	.0	2.98

HYDROGRAPH PEAK= 13.74 cfs
TIME TO PEAK= 12.00 Hours
RUNOFF VOLUME= 1.20 Acre-Feet

PROJECT : VALLEY CAMP SEDIMENT POND 003A: 25-YR. 24-HR PEAK INFLOW

AREA= 7.1 ACRES
AVERAGE BASIN SLOPE= 32.0 PERCENT
CURVE NUMBER= 85.0
DESIGN STORM= 2.92 INCHES
STORM DURATION= 24.0 HOURS
HYDRAULIC LENGTH= 1100. FEET
MINIMUM INFILTRATION RATE= .00 IN/HR

TP= .0571 HOURS QPCFS= 93.76 CFS QPIN=13.1325 INCHES
C3= 64.7302 ITERATIONS= 8 SCS 24-hour

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
8.03	.3522	.0000	.0000	.0	.00
8.04	.3532	.0000	.0000	8.9	.00
8.05	.3542	.0000	.0000	45.9	.00
8.07	.3552	.0000	.0000	81.6	.00
8.08	.3562	.0000	.0000	93.8	.00
8.10	.3572	.0000	.0000	84.9	.00
8.11	.3582	.0000	.0000	66.1	.00
8.13	.3592	.0000	.0000	46.4	.00
8.14	.3602	.0000	.0000	30.1	.00
8.15	.3612	.0000	.0000	18.5	.00
8.17	.3622	.0000	.0000	10.8	.00
8.18	.3632	.0000	.0000	6.1	.00
8.20	.3642	.0000	.0000	3.3	.00
8.21	.3652	.0000	.0000	1.8	.00
8.23	.3662	.0000	.0000	.9	.00
8.24	.3672	.0001	.0000	.5	.00
8.25	.3682	.0001	.0000	.2	.00
8.27	.3692	.0001	.0000	.1	.00
8.28	.3702	.0002	.0000	.0	.00
11.91	1.7353	.6072	.0216	.0	10.36
11.92	1.7670	.6290	.0218	.0	10.47
11.94	1.7987	.6510	.0220	.0	10.58
11.95	1.8304	.6732	.0222	.0	10.69
11.97	1.8620	.6956	.0224	.0	10.80
11.98	1.8937	.7182	.0226	.0	10.90
12.00	1.9254	.7410	.0227	.0	10.99
12.01	1.9400	.7514	.0105	.0	10.98
12.02	1.9460	.7558	.0043	.0	10.44
12.04	1.9520	.7601	.0043	.0	9.23
12.05	1.9580	.7645	.0044	.0	7.63
12.07	1.9640	.7689	.0044	.0	6.05
12.08	1.9700	.7732	.0044	.0	4.74

HYDROGRAPH PEAK= 10.99 cfs
TIME TO PEAK= 12.00 Hours
RUNOFF VOLUME= .90 Acre-Feet

PROJECT : VALLEY CAMP SEDIMENT POND 004A: 25-YR, 24-HR PEAK INFLOW

AREA= 37.1 ACRES
AVERAGE BASIN SLOPE= 40.0 PERCENT
CURVE NUMBER= 83.0
DESIGN STORM= 2.92 INCHES
STORM DURATION= 24.0 HOURS
HYDRAULIC LENGTH= 2040. FEET
MINIMUM INFILTRATION RATE= .00 IN/HR

TP= .0896 HOURS QPCFS= 312.99 CFS QPIN= 8.3664 INCHES
C3= 41.2379 ITERATIONS= 8 SCS 24-hour

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
8.77	.4088	.0000	.0000	.0	.00
8.78	.4104	.0000	.0000	15.7	.00
8.80	.4120	.0000	.0000	97.2	.00
8.82	.4135	.0000	.0000	207.8	.00
8.84	.4151	.0000	.0000	287.3	.00
8.86	.4167	.0000	.0000	313.0	.00
8.87	.4182	.0000	.0000	293.2	.00
8.89	.4198	.0000	.0000	247.5	.00
8.91	.4214	.0000	.0000	193.6	.01
8.93	.4230	.0000	.0000	142.8	.02
8.95	.4245	.0001	.0000	100.7	.02
8.96	.4261	.0001	.0000	68.4	.02
8.98	.4277	.0002	.0000	45.0	.03
9.00	.4292	.0002	.0000	28.9	.03
9.02	.4309	.0002	.0000	18.1	.04
9.04	.4326	.0003	.0000	11.2	.04
9.05	.4343	.0003	.0000	6.8	.05
9.07	.4359	.0003	.0000	4.0	.05
9.09	.4376	.0004	.0000	2.4	.06
9.11	.4393	.0004	.0000	1.4	.07
9.13	.4410	.0005	.0000	.8	.07
9.14	.4426	.0005	.0000	.5	.08
9.16	.4443	.0006	.0000	.3	.08
9.18	.4460	.0006	.0000	.1	.09
9.20	.4477	.0007	.0000	.0	.09
11.90	1.7236	.5135	.0248	.0	47.30
11.92	1.7634	.5387	.0252	.0	48.20
11.94	1.8032	.5642	.0255	.0	49.06
11.96	1.8430	.5901	.0259	.0	49.89
11.98	1.8828	.6163	.0262	.0	50.69
11.99	1.9225	.6427	.0265	.0	51.46
12.01	1.9410	.6551	.0124	.0	51.98
12.03	1.9485	.6602	.0051	.0	51.17
12.05	1.9560	.6653	.0051	.0	48.13

PROJECT : VALLEY CAMP SEDIMENT POND 004A: 25-YR, 24-HR PEAK INFLOW
(Continued)

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
12.07	1.9636	.6704	.0051	.0	43.06
12.08	1.9711	.6755	.0051	.0	36.94
12.10	1.9786	.6806	.0051	.0	30.81
12.12	1.9862	.6857	.0051	.0	25.40

HYDROGRAPH PEAK= 51.98 cfs
TIME TO PEAK= 12.01 Hours
RUNOFF VOLUME= 4.27 Acre-Feet

HANSEN ALLEN & LUCE INC

CLIENT Valley Camp
PROJECT Sediment Pond Analysis
FEATURE Mean Annual Sediment Loadings
PROJECT NO. 7-10-1

SHEET 1 OF 4
COMPUTED GJP
CHECKED
DATE Sep 20, 1988

10-yr 24-hr Runoff Volumes

POND	Tributary Area (acres)	Composite CN	10yr 24-hr Runoff (inches)	Runoff Volume (Ac Ft)	+ 2yr SED	+ 3yr sed
001A	11.5	86.4	1.23	1.18	0.62	0.93
002A	7.1	91.2	1.58	0.94	.06	0.10
003A	7.1	85	1.14	0.67	0.34	0.51
004A	37.1	83	1.02	3.15	0.50	.75

Sediment Volumes

Modified Universal Soil Loss Equation

$$A = R \cdot K \cdot LS \cdot VM$$

reference: "Erosion and Sedimentation in Utah: A Guide for Control" Israelsen et al 1984

where
- A = soil loss per unit area (tons/acre/year)
- R = rainfall factor
- K = soil erodibility factor
- LS = topographic factor
- VM = erosion control factor

R (rainfall factor):

ref. PRICE ISO-ERODENT (R) VALUES 1983

Mean Annual R = 15 at VC load out site
= 19 at Beliza Mine

K soil erodibility factor

map for state of utah indicates that the Valley Camp Load Out facility is about on the border between soil erodibility types — choose the more conservative range:

K = 0.21 to 0.3 use 0.3

LS see Table 2

λ_n = sum of slope segment lengths =

VM

Undisturbed: Aspen/grass 60% grandcover 0.012
Sage/grass 60-80% 0.039

Disturbed: use VM = 1.0 ref. Red Book Appendix 5A

HANSEN ALLEN & LUCE INC

CLIENT Valley Camp
PROJECT Sediment Pond Analysis
FEATURE Mean Annual Sediment Loadings
PROJECT NO. 7-10-1

SHEET 2 OF 4
COMPUTED GJP
CHECKED
DATE Sep 20, 1988

POND 001A

- Ignore Conveyance deposition (conservative approach)
- Assume a unit weight of sediment of 75 lbs/ft³
- R = 15 K = 0.3 ⇒ R·K = 4.5

Sub Area	area (acres)	ℓ ft	S %	LS	VM	A (4.5·LS·VM) t/ac/yr	Sed tons/yr	Sed AF/yr	
Sage/Grass	3.4	120	62%	.28	.039	4.9	16.7		
Disturbed									
① steep slope	1.9	80	62%	[1] 37.5	1.0	168.8	320.7		
② old portal yd	2.9	50	6%	[2] 1.4	1.0	6.3	18.3		
③ rest	2.9	90	40	12.0	1.0	54.0	156.6		
							512.3	(0.31)	OK

[1] $LS = \frac{(L\lambda_n S_{sn})\lambda_n - (L\lambda_{n-1} S_{sn})\lambda_{n-1}}{L_n} = \frac{29(165) - 21(85)}{80}$

[2] $LS = \frac{(1.0)215 - (0.87)(165)}{50} = 1.43$

HANSEN ALLEN & LUCE INC

CLIENT Valley Camp
PROJECT Sediment Pond Analysis
FEATURE Mean Annual Sediment Loadings
PROJECT NO. 7-10-1

SHEET 3 OF 4
COMPUTED GSP
CHECKED
DATE Sep 20, 1988

Pond 002A

$A = RKLS\,VM$

- $R = 15$ $K = 0.3 \Rightarrow R \cdot K = 4.5$

Sub Area	area (acres)	ℓ (ft)	S %	LS	VM	A	SED, tons/yr	Sed AF/yr
① steep	0.7	60	33%	7.30	1.0	32.8	23.0	
② channel/side	0.6	40	38%	7.0	1.0	31.5	18.9	
③ pads etc	4.8	130	3%	0.3	1.0	1.35	6.48	
							48.4	
Road + Pond	1.0				0		0	
	7.1						48.4	0.03

Pond 003A

Sub Area	area (acres)	ℓ (ft)	S %	LS	VM	A	SED tons/yr	SED AF/yr
SAGE/Grass	1.0	400	29%	15.9	.039	2.8	2.8	
ASPEN	1.65	250	35%	16.16	.012		0.9	
Disturbed								
① Steep	0.4	27	100%	[1] 102	1.0	459	184	
② steep below trail	0.7	95	50%	17.4	1.0	78.3	54.8	
③ upper pads	0.7	55'	4%	0.32	1.0	1.44	1.0	
④ to bottom ditch	0.7	85'	30%	7.3	1.0	32.9	23.0	
⑤ rest	1.5	200'	8.5%	1.53	1.0	6.89	10.3	
⑥ Far South Area	0.25	90'	20%	3.98	1.0	17.91	1.5	
							282.5	0.17 AF/yr

[1] $LS = \dfrac{(L\lambda_n SS_n)\lambda_n - (L\lambda_{n-1} SS_{n-1})\lambda_{n-1}}{\ell_n} = \dfrac{(70)277 - 66.8(250)}{27}$

HANSEN ALLEN & LUCE INC

CLIENT Valley Comp
PROJECT Sediment Pond Analysis
FEATURE Mean Annual Sediment Loadings
PROJECT NO. 7-10-1

SHEET 4 OF 4
COMPUTED GJP
CHECKED
DATE Nov 8, 1988

Pond 004A

$A = RKLSVM$

$R = 15 \quad K = 0.3 \Rightarrow RK = 4.5$

Sub Area	Area (acres)	ℓ (ft)	S %	LS	VM	A	sed ton/yr	Sed AF/yr
D4 seg 1	0.9	42	139%	27	.02	2.43	2.2	
seg 2	2.5	540	6%	1.57	1.3	9.18	22.9	
	3.4							
D5	0.8	102	54%	20.5	0.9	83.0	66.4	
D6	3.7	110	45%	15.6	0.01	0.7	2.6	
D7 seg 1	0.8	50	90%	26.9	0.9	108.9	87.1	
seg 2	2.0	440	4%	0.73	1.3	4.27	8.5	
	2.8							
D8	1.0	100	40%	12.65	0.01	0.57	0.6	
D9 seg 1	0.7	170	47%	21.6	0.9	87.48	2.9	
seg 2	0.14	55	200%	233	0.02	20.97		
seg 3	4.7	360	5%	1.0	1.3	5.85	27.5	
	5.5							
D10 seg 1	0.6	170	47%	21.5	0.9	87.0	52.2	
seg 2	2.4	430	8.1%	2.0	1.3	11.7	28.0	
	3.0							
D11	0.8	180	47%	22.0	1.3	128.7	103.0	
U4	7.2	480	39%	23.0	.009	0.93	6.7	
U5	5.3	700	22%	12.62	.009	0.51	2.7	
U6	2.6	206	49%	25.3	.01	1.14	3.0	0.25

416 ton/yr

Sediment Volume = $416 \frac{t}{yr} \frac{2000 lb}{t} \frac{1 ft^3}{75 lb} \times \frac{1}{43560}$

= 0.25 AF

SEDIMENT POND DISCHARGE
CALCULATION CORRECTION NOTICE
(Prepared by Hansen, Allen & Luce)

June 8, 1990

Documentation of the re-survey of the four sediment ponds located at the Valley Camp of Utah facility was recently provided by Valley Camp to Hansen, Allen & Luce, Inc.. An calculation check was made to note what impact the newly obtained information has on work previously performed for the spillway rating curves. A comparison of the previous data with that of the new information is tabulated below.

Sedimentation Pond Number	Primary Spillway		Emergency Spillway	
	Prior Outfall Elev. (ft)	Updated Outfall Elev. (ft)	Prior Outfall Elev. (ft)	Updated Outfall Elev. (ft)
001A	7813.0	7809.39	7813.0	7809.41
002A	7828.0	7826.51	7828.0	7826.43
003A	7854.5	7854.60	7854.5	7854.22
004A	8859.0	8861.35	-	-

The only pipe outfall which was surveyed at a higher elevation than previously measured was for the primary spillway on Pond 003A. The small amount of decrease in head (totaling 0.1 feet) will not impact significantly the flow characteristics at the pipe inlet, or pipe flow itself for Pond 003A.

The updated information as shown in the table does however indicate larger variations in the outfall elevations for Ponds 001A, 002A, and 004A. The impact these elevation changes have on each pond is that the carrying capacity of each outfall pipe is increased, due to the increase in available head. As noted from the calculations based upon earlier information, the limiting factor for all ponds was orifice flow rather than pipe flow. Because of this, the earlier calculations remain valid as conservative estimates of each ponds ability to function during periods of high flow. No additional calculations will be required or are submitted. The calculations shown on the following pages are those prepared based upon the earlier, more conservative information.