File: ACT/007/001
Folder # 7 & 15 [illegible]

0033

VALLEY CAMP OF UTAH, INC.

Scofield Route
Helper, Utah 84526

September 11, 1985

RECEIVED
SEP 12 1985
DIVISION OF OIL
GAS & MINING

Mr. Wayne D. Hedberg
Division of Oil, Gas & Mining
355 West North Temple
3 Triad Center
Salt Lake City, Utah 84180-1203

Re: Notice of Violation No. N85-2-12-1

Dear Mr. Hedberg:

As you are aware, the cleaning and enlarging activities associated with the No. 2 Pond at the Utah No. 2 Mine are now complete. In regards to this activity, I hand delivered certain material, relating to the subject violation, to your office on August 30, 1985. At that time, I met with Mr. Lowell Braxton and explained to him that, due to some last minute calculations by Vaughn Hansen Associates on the hydrology associated with the pond, the drawing (No. C4-0060) submitted at that time would have to be re-submitted due to required changes in the pond spillways. The enclosed drawings are intended to replace those left at your office on the 30th.

Since the submittal was made, Mr. Marvin Allen of V.H.A. has performed a complete review of the rebuilt pond and all associated drainage and runoff characteristics associated with the affected area. As a result of this work, revisions to the discharge structure in the pond have been made which will meet regulatory requirements dealing with storage and discharge of the design events.

In support of this work, please find enclosed seven (7) copies each of Drawing Nos. C4-0060, Rev. 1, and B3-0033. These drawings show the pond in plan and cross section, and provide stage capacity and total storage information, respectively.

In addition to the previously mentioned drawings, the following material is also submitted:

1. Seven (7) copies of the support calculations prepared by V.H.A.

2. Seven (7) copies of the analysis of the material removed, as a result of enlarging the pond.

3. Seven (7) copies of Drawing No. D4-0110 indicating the storage area of the material removed.

In an effort to help reduce erosion on the newly formed interior slopes, I am planning on revegetating these southern slopes sometime in October with a temporary seed mix.

For your information, the supporting data and proposed pond revision were discussed with Mr. Tom Suchoski on September 5, 1985.

I await your decision as to the acceptability of the removed material as substitute topsoil, and assume this submittal will satisfy the Division's needs in regards to final abatement of the violation.

Please contact me if you have questions concerning the enclosed.

Sincerely,

Trevor G. Whiteside
Chief Engineer

TGW/lam

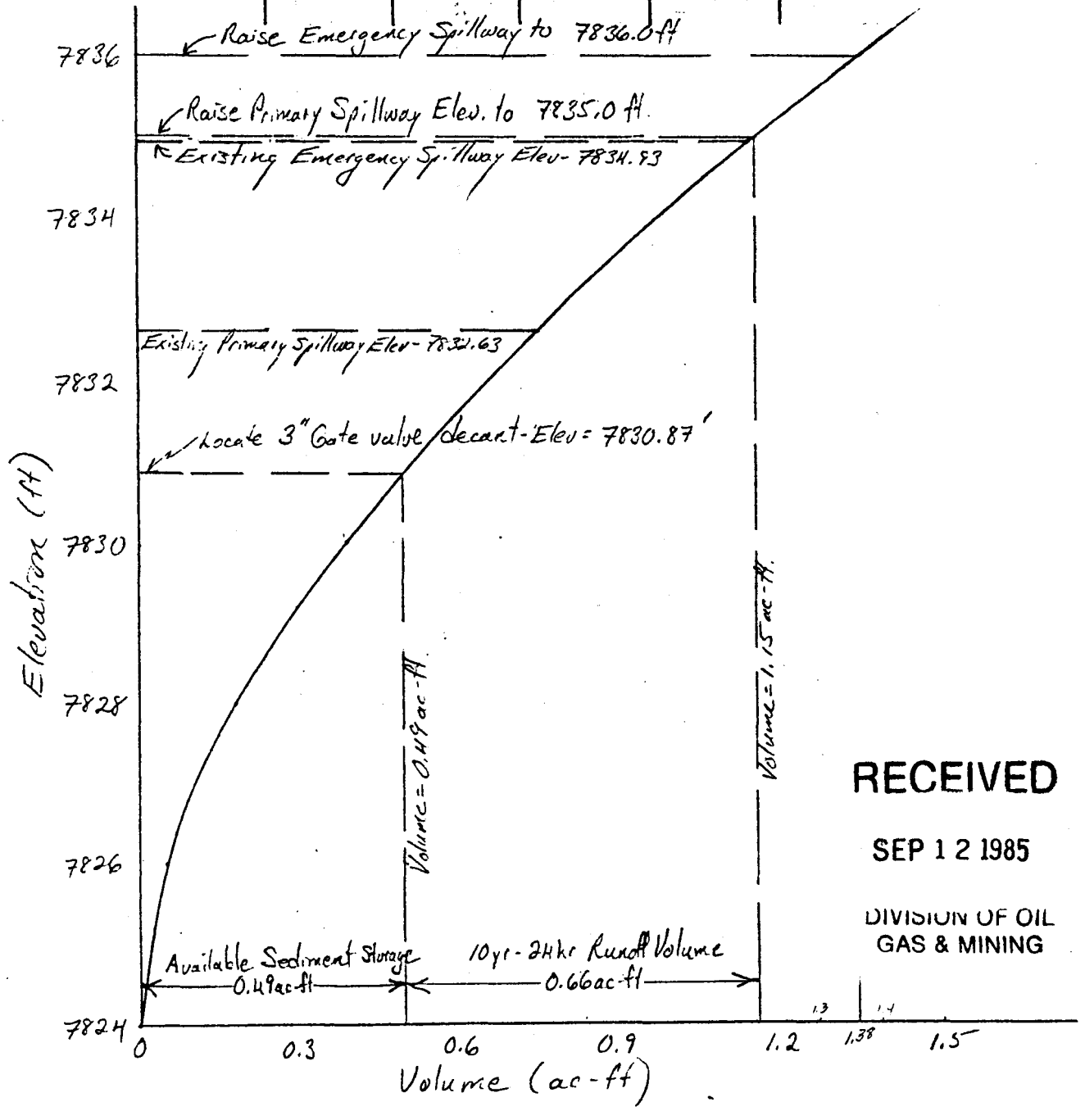
Enclosures

VAUGHN HANSEN ASSOCIATES
CONSULTANTS / ENGINEERS

COMPUTED [illegible] CLIENT Valley Camp
CHECKED PROJECT Utah No. 2 Pond
DATE 8/29/85 FEATURE Stage Capacity Curve

Elev ft	Area ac	Volume ac-ft	Σ Volume ac-ft
7824	0.01		0
		0.05	
7826	0.04		0.05
		0.13	
7828	0.09		0.18
		0.21	
7830	0.12		0.39
		0.36	
7832.63	0.15		0.75
		0.39	
7834.93	0.19		1.14

Top of bank = 7837.5



RECEIVED
SEP 12 1985
DIVISION OF OIL GAS & MINING

VAUGHN HANSEN ASSOCIATES
CONSULTANTS / ENGINEERS

COMPUTED M.A. CLIENT Valley Camp
CHECKED PROJECT Utah No 2 Sed. Pond
DATE 9/4/85 FEATURE Required Changes

1/3

I- Spillway capacity.

See attached calculations for peak 25-year, 24 hour event

Q = 10.25 cfs.

Requirement: Appropriate combination of principal and emergency spillways provided to discharge safely the runoff from a 25-year, 24-hour precipitation event. Crest of emergency spillway shall be a minimum of 1.0 foot above the crest of the principal spillway.

Both principal and emergency spillways are 18-inch cmp. according Trevor Whitesides of Valley Cam.

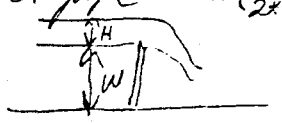
Rating curve for 18-inch standpipe and outflow pipe

A- Weir flow

$Q = CLH^{3/2}$

L = circumference of pipe $= 2\pi\left(\frac{18}{2\times12}\right) = 4.71$ ft.

$C = 3.27$



$W \approx 1$ ft.

H	Q
0.1	0.49
0.2	1.38
0.3	2.53
0.4	3.90
0.5	5.44
0.6	7.16
0.7	9.02
0.8	11.02
0.9	13.15
1.0	15.40
1.2	20.25
1.4	25.51
1.6	31.18
1.8	37.19

B-Orifice Flow

$$Q = C' a \sqrt{2gH}$$

$$a = \text{Area} = \frac{\pi (1.5)^2}{4} = 1.77 \text{ ft}^2$$

$$C' = 0.6$$

H	Q	H	Q	H	Q
0.1	2.70	0.8	7.62	1.5	10.44
0.2	3.81	0.9	8.08		
0.3	4.67	1.0	8.52		
0.4	5.39	1.1	8.94		
0.5	6.03	1.2	9.34		
0.6	6.60	1.3	9.72		
0.7	7.13	1.4	10.08		

C- Pipe Flow

$a = 1.77 \text{ ft}^2$

$$Q = \frac{a (2gH')^{1/2}}{(1 + K_e + K_b + K_c L)^{1/2}} = 0.524 \sqrt{2gH'}$$

K_e = entrance loss coef = 1.0
K_b = bend loss coef = 0.5
K_c = friction loss coef = $\frac{5087 n^2}{d^{4/3}}$ (Pipe diameter) $= \frac{5087 (0.03)^2}{(18)^{4/3}} = 0.097$

L = 92 feet
Discharge Elevation = 7826.5 + 0.6d = 7826.5 + 0.6(1.5) = 7827.40
Emergency Spillway Elev = 7836
H'- Emergency Spillway = H + (7836 - 7827.40)
= H + 8.6

Primary Spillway Elev = 7835 ft
H'- Primary Spillway = H + (7835 - 7827.4)
= H + 7.6

Pipe flow for primary spillway at H = 1.5

$$H' = 1.5 + 7.6 = 9.1$$

$$Q = 0.524 \sqrt{2g(9.1)} = 12.68 \text{ cfs}$$

A comparison with orifice flow at H = 1.5 (Q = 10.44 cfs) indicates that pipe flow is not limiting at this depth but that orifice flow is.

Combined primary and emergency spillway rating table

Elev	Q (cfs)	Elev	Q (cfs)
7835.0	0	7835.9	8.08
7835.1	0.49	7836.0	8.52
7835.2	1.38	7836.1	9.43
7835.3	2.53	7836.2	10.72
7835.4	3.90	7836.3	12.25
7835.5	5.44	7836.4	13.98
7835.6	6.60	7836.5	15.88
7835.7	7.13		
7835.8	7.62		

II - Required modifications

See attached stage capacity curve

1 - Raise emergency spillway from 7834.93 to 7836 ft.

2 - Raise primary spillway from 7832.63 to 7835 ft.

3 - Locate 3" gate valved decant at elev 7830.87 ft.

With these modifications:

Available runoff storage volume = 0.66 ac-ft

Available sediment storage volume = 0.49 ac-ft.

VAUGHN HANSEN ASSOCIATES
CONSULTANTS / ENGINEERS

COMPUTED M.A. CLIENT Valley Camp
CHECKED PROJECT Utah No 2 Pond
DATE 8/29/85 FEATURE Storage & Spillway Reg.

I- Contributing area hydrologic characteristics:

Total Area = 6.08 acres

Vegetated Area = 0.86 acres

Reclaimed Area = 0.88 acres

Paved Road = 0.72 acres

Disturbed Area = 3.62 acres.

Curve Number -

Volume Weighted CN. assuming:

Vegetated Area CN = 70

Reclaimed Area CN = 80

Disturbed Area CN = 90

Paved Area CN = 95

10 year - 24 hour precipitation = 2.45 inches.

Runoff Depth $Q = \frac{(P - 0.2S)^2}{P + 0.8S}$ 0.66 ac-ft

$S = \frac{1000}{CN} - 10$

Area	CN	P in.	Q in	Area acres	Area*Q ac-in
Vegetated	70	2.45	0.43	0.86	0.37
Reclaimed	80	2.45	0.85	0.88	0.75
Disturbed	90	2.45	1.49	3.62	5.39
Paved	95	2.45	1.92	0.72	1.38
					Σ = 7.89 ac-in.

$Wt.\ Q = \frac{7.89}{\text{Total Area}} = \frac{7.89}{6.08} = 1.3$ inches.

Wt CN to give wt. Q = 87.5

10 yr - 24 hour runoff Volume $= \frac{7.89 \text{ ac-in}}{12} = \underline{0.66 \text{ ac-ft}}$

II - Sediment Inflow

Assuming as per VHA 1978 report, 0.1 ac-ft of sediment storage for each acre of disturbed area and assuming that reclaimed areas are sufficiently vegetated at this time to not be considered disturbed area, then the total disturbed area = 3.62 acres and the sediment storage requirement = 0.1 * 3.62 = 0.36 ac-ft

However the agency may require that sediment storage be computed based on the entire area = 6.08 * 0.1 = 0.6 ac-ft

III - Total Storage required = 0.66 + 0.6 = 1.26 ac-ft

IV - Peak discharge from the 25-year 24 hour event.

25-year 24-hour precip = 2.92 inches.

Area = 6.08 acres.

Hydraulic Length = 820 ft

$$\text{Watershed Slope} = \frac{\text{Contour Length} * \text{Contour Interval}}{\text{Area}}$$

$$= \frac{10{,}640 * 5}{6.08 * 43560} = 20\%$$

Wt. CN = Area	CN	P in	Q in	Area	Area * Q
Vegetated	70	2.92	0.67	0.86	0.58
Reclaimed	80	2.92	1.19	0.88	1.05
Disturbed	90	2.92	1.91	3.62	6.91
Paved	95	2.92	2.37	0.72	1.71
					Σ = 10.25 ac-in

$$Wt\ Q = \frac{10.25}{Area} = \frac{10.25}{6.08} = 1.69 \text{ inc.}$$

CN_{WT} to give $Wt\ Q = 87.3$

Use $\underline{\underline{87 = CN}}$

$Q = \underline{10.25}$ cfs ~~see~~ attached printout.

PROJECT : Utah No. 2 Sed. Pond-25 Year, 24 Hour Event

AREA= 6.1 ACRES
AVERAGE BASIN SLOPE= 20.0 PERCENT
CURVE NUMBER= 87.
DESIGN STORM= 2.92 INCHES
STORM DURATION= 24.0 HOURS
HYDRAULIC LENGTH= 820. FEET

TP= .0531 HOURS QPCFS= 86.53 CFS QPIN=14.1139 INCHES
C3= 69.5675 ITERATIONS= 8 SCS 24-hour

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
7.10	.2983	.0000	.0000	.0	.00
7.12	.2994	.0000	.0000	17.5	.00
7.13	.3006	.0000	.0000	66.2	.00
7.15	.3017	.0000	.0000	86.5	.00
7.17	.3028	.0000	.0000	73.2	.00
7.19	.3040	.0000	.0000	48.7	.00
7.20	.3051	.0000	.0000	27.9	.00
7.22	.3062	.0000	.0000	14.4	.00
7.24	.3074	.0000	.0000	6.9	.00
7.26	.3085	.0001	.0000	3.1	.00
7.27	.3096	.0001	.0000	1.3	.00
7.29	.3108	.0001	.0000	.6	.00
7.31	.3119	.0001	.0000	.2	.00
7.33	.3131	.0001	.0000	.1	.01
11.89	1.7018	.6794	.0287	.0	9.64
11.91	1.7411	.7083	.0290	.0	9.75
11.93	1.7804	.7376	.0292	.0	9.85
11.95	1.8196	.7671	.0295	.0	9.96
11.97	1.8589	.7968	.0298	.0	10.05
11.98	1.8982	.8268	.0300	.0	10.15
12.00	1.9362	.8561	.0293	.0	10.22
12.02	1.9437	.8619	.0058	.0	9.83
12.04	1.9511	.8676	.0058	.0	8.26
12.05	1.9586	.8734	.0058	.0	6.19
12.07	1.9660	.8792	.0058	.0	4.45
12.09	1.9735	.8850	.0058	.0	3.29
12.11	1.9809	.8908	.0058	.0	2.63

HYDROGRAPH PEAK= 10.25 cfs
TIME TO PEAK= 11.99 Hours

Ford Chemical
LABORATORY, INC.
Bacteriological and Chemical Analysis
40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 466-8761

DATE: 08/22/85

CERTIFICATE OF ANALYSIS

VALLEY CAMP OF UTAH
SCOFIELD ROUTE
HELPER, UTAH
84526

85-008570

SAMPLE: SOIL SAMPLES RECEIVED 8-9-85 FOR ANALYSIS UNDER P.O. #30-85-60-017630.

	UTAH #2 POND 002
1-Clay % USDA 18	29.00
1-Sand % USDA 18	65.00
1-Silt % USDA 18	6.00
Alkalinity CACO3 Meq/100gm	.27
Alkalinity as CaCO3 ppm	1,682
Calcium as Ca meq/100gm	10.31
Calcium as Ca ppm SM 303A	20,665
Cation Exchange Cap.Meq/100gm	25.50
Conductivity mmhos/cm @ 25	1.3
Magnesium as Mg ppm SM303A	5,580.30
Magnesium as Mg meq/100gm	4.58
Nitrogen as N2 ppm (A)	450.00
Organic Material % (Dry B)	10.50

RECEIVED
SEP 12 1985
DIVISION OF OIL
GAS & MINING

All reports are submitted as the confidential property of clients. Authorization for publication of our reports, conclusions, or, extracts from or regarding them, is reserved pending our written approval as a mutual protection to clients, the public and ourselves.

Ford Chemical
LABORATORY, INC.
Bacteriological and Chemical Analysis
40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 466-8761

CERTIFICATE OF ANALYSIS
85-008570

	UTAH #2 POND 002
Phosphorus as P ppm SM424C(A)	2.50
Potassium as K ppm SM303A	2,538.03
Potassium as K meq/100gm	.64
Saturation %	12.00
Sodium Absorption Ratio	.937
Sodium as Na meq/100gm	.25
Sodium as Na ppm SM303A	588
Total Kjeldahl Nitrogen ppm	1,640.00
pH Units (1:1 Ratio) SM423	8.00

FORD CHEMICAL LABORATORY, INC.

All reports are submitted as the confidential property of clients. Authorization for publication of our reports, conclusions, or, extracts from or regarding them, is reserved pending our written approval as a mutual protection to clients, the public and ourselves.

0036

Document Information Form

Mine Number: C/007/0001

File Name: White Oak - Incoming

To: DOGM

From:

Person

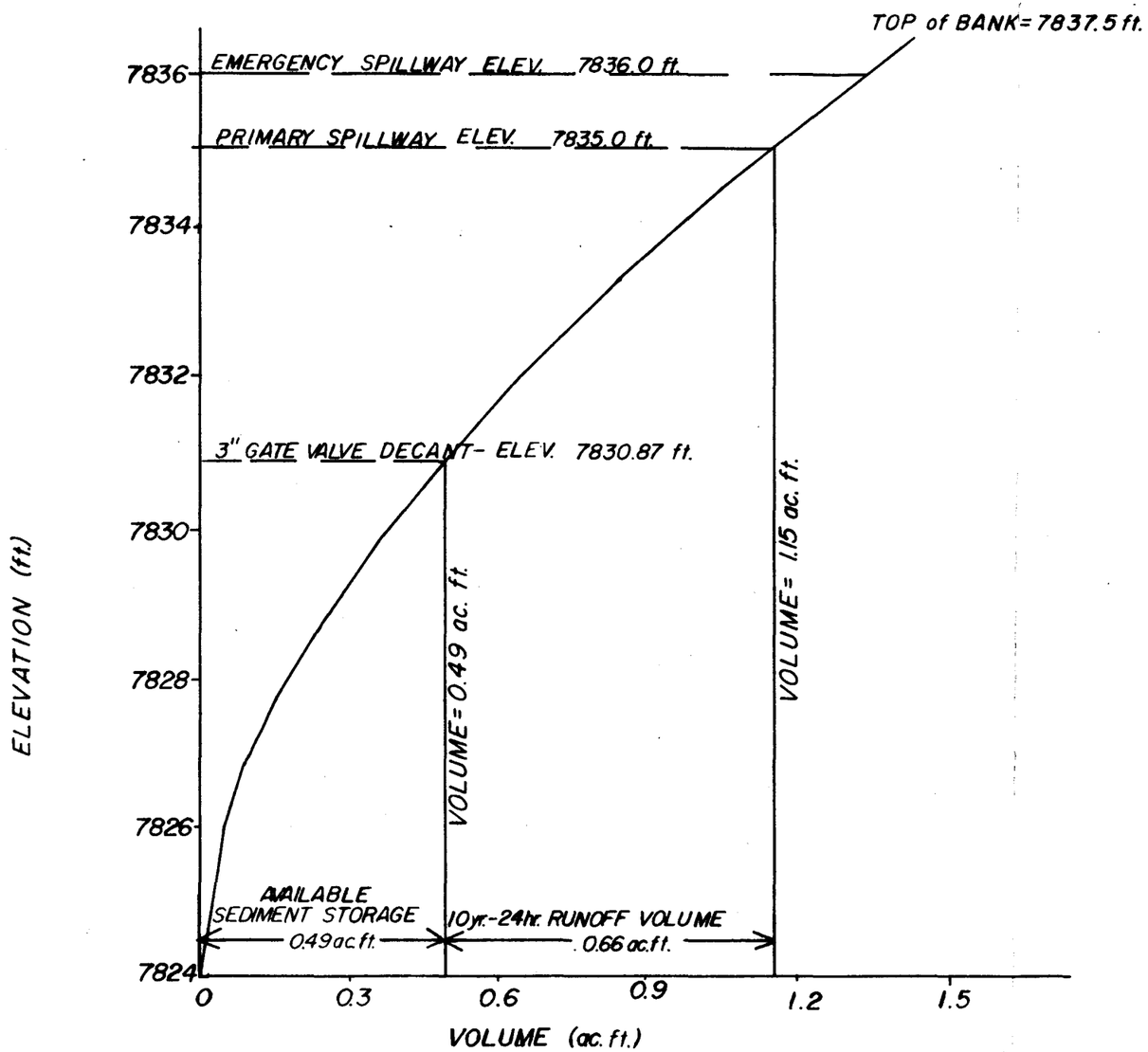
Company

Date Received: 9/12/85

Explanation: Misc. Map.

cc:

MONSEN ENG.• MC703



ELEV. ft.	AREA ac.	VOLUME ac. ft.	ΣVOLUME ac. ft.
7824	0.01		0
		0.05	
7826	0.04		0.05
		0.13	
7828	0.09		0.18
		0.21	
7830	0.12		0.39
		0.36	
7832.63	0.15		0.75
		0.39	
7834.93	0.19		1.14

RECEIVED
SEP 1 2 1985
DIVISION OF OIL
GAS & MINING

DRAWN BY: K. PAPPAS
DATE: SEPT. 10, 1985
CHECKED BY:
DATE:
APPROVAL:
APPROVAL:
APPROVAL:

VALLEY CAMP OF UTAH, INC.
SCOFIELD ROUTE
HELPER, UTAH 84526

TITLE: UTAH NO. 2 POND- STAGE CAPACITY & CURVE

SCALE: NONE

DRAWING NO. B-3- 0033