CROW BUTTE RESOURCES, INC.

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September 25, 2000

U.S. Nuclear Regulatory Commission
Attention: Mr. Philip Ting, Chief
Fuel Cycle Licensing Branch
Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Material Safety and Safeguards
Mail Stop T8A-33
Washington, D.C. 20555-0001

Re: Source Materials License SUA-1534
Docket No. 40-8943
Evaporation Pond 1 Liner Leak

Dear Mr. Ting:

On June 9, 2000 during routine evaporation pond monitoring of Crow Butte Resources, Inc. (CBR) Evaporation Pond 1, conductivity readings from the southwest underdrain indicated a potential pond liner leak. CBR has completed repairs to the primary liner on Pond 1 and has flushed the underdrains to ensure that any future liner leaks can be detected. Attached is a report describing the mitigative actions taken by CBR. Based upon the results of these actions, CBR believes that the leaks have been repaired and that Pond 1 may be returned to normal operational status.

If you have any questions or require any further information, please do not hesitate to call me at (308) 665-2215.

Sincerely,
CROW BUTTE RESOURCES, INC.

Michael Griffin
Manager of Environmental and Regulatory Affairs

Attachments: As Stated

cc: Mr. Steve Collings - CBR, Denver, Colorado
Mr. William Ford – USNRC, Uranium Recovery Branch

NMSS01Public

CROW BUTTE RESOURCES, INC.

Crow Butte Mine

Evaporation Pond 1

Liner Leak Final Report

Introduction

On June 9, 2000 during routine evaporation pond monitoring of Crow Butte Resources, Inc. (CBR) Evaporation Pond 1, conductivity readings from the southwest underdrain indicated a potential pond liner leak. As required by License Condition 11.4 of SUA-1534, a sample was collected and analyzed for chloride, alkalinity, conductivity, sodium, and sulfate. The results of this sample indicated that the concentrations of the indicator parameters in the underdrain were elevated, approaching concentrations that were similar to the pond contents. A second sample confirmed these results. Based upon these results, it was determined that a liner leak potentially existed in the southwest corner of Pond 1.

As required by License Condition 12.3, a 30-day report was submitted on July 7, 2000 that discussed analytical data, immediate mitigative actions, and the results of those actions. This report provides the final results of actions taken by CBR that indicate that the leak in the pond liner has been repaired and the underdrain is returned to a condition that will allow the detection of any future liner leaks.

Liner Repairs

Upon confirmation of the liner leak on June 9, CBR began to lower the level of Pond 1 by pumping water to Pond 4. Concurrently, an immediate visual inspection of the liner in the southwest quadrant of the pond was performed. The inspection did not locate any visual indication of potential sources of leakage. Several areas where the liner had indications of abrasion were vacuum tested, but did not indicate liner failure.

As noted in the 30-Day Report, the contents of Pond 1 were transferred to Pond 4 until the water level was reduced from 10 feet 0 inches to 8 feet 6 inches. A complete visual inspection was repeated, paying particular attention to the waterline. No apparent sources of leaks were identified.

On July 31and August 1, 2000, Serrot International performed a complete visual inspection of Pond 1. The Serrot inspection of the Pond 1 liner identified locations where repairs were required. The following actions were performed in the areas noted:

- Worn and scratched areas were located at approximately two to five feet above the water level in the center of the west embankment. These areas were patched.
- Three underdrain boots were torn at the top of the south embankment and were repaired.

All patches were 60-mil high-density polyethylene (HDPE) liner material that was welded in place and vacuum tested for integrity.

Pond Monitoring

Following discovery of the leak, CBR began weekly sampling of the southwest underdrain with analysis for alkalinity, chloride, sodium, conductivity, and sulfate as required in License Condition

11.4. Attachment 1 contains copies of the Weekly Evaporation Pond Underdrain Analysis forms and the analytical results from the CBR laboratory for the weekly samples from July 12 through September 20, 2000. (Results from June 7 through July 5 weekly sampling were previously submitted in the 30-Day Report). A chart is also included for the southwest underdrain that plots the trends of the weekly analysis for the five indicator parameters from June 7 through September 20, 2000.

In addition to the required weekly analysis for the underdrains, CBR obtained non-routine samples from pond monitor well CPM-1 and CPM-2. The pond monitors are completed in the first aquifer and are located downgradient of Pond 1 at the fenced restricted area boundary. Samples were obtained and analyzed for the indicator parameters on July 14, August 10, and August 28, 2000 to ensure that there was no indication of leakage in the secondary liner. Analytical results were consistent with historical sampling results and are contained in Attachment 2.

Attachment 3 contains copies of the Commercial Pond Inspection Forms for the period of July 2 to September 16, 2000. Water levels in the underdrains were constant during this period with the exception of the southwest underdrain during flushing and pumping activities. There was no indication of level changes in the southwest underdrain that was not directly related to underdrain cleanup activities.

Results of Mitigative Actions

Based upon the monitoring data, CBR believes that the apparent liner leaks that were detected in the southwest underdrain have been successfully repaired. Serrot International performed the repairs and vacuum testing on July 31 to August 1, 2000. The ponds have been inspected several times to ensure there are no other sources of leaks that were not previously identified.

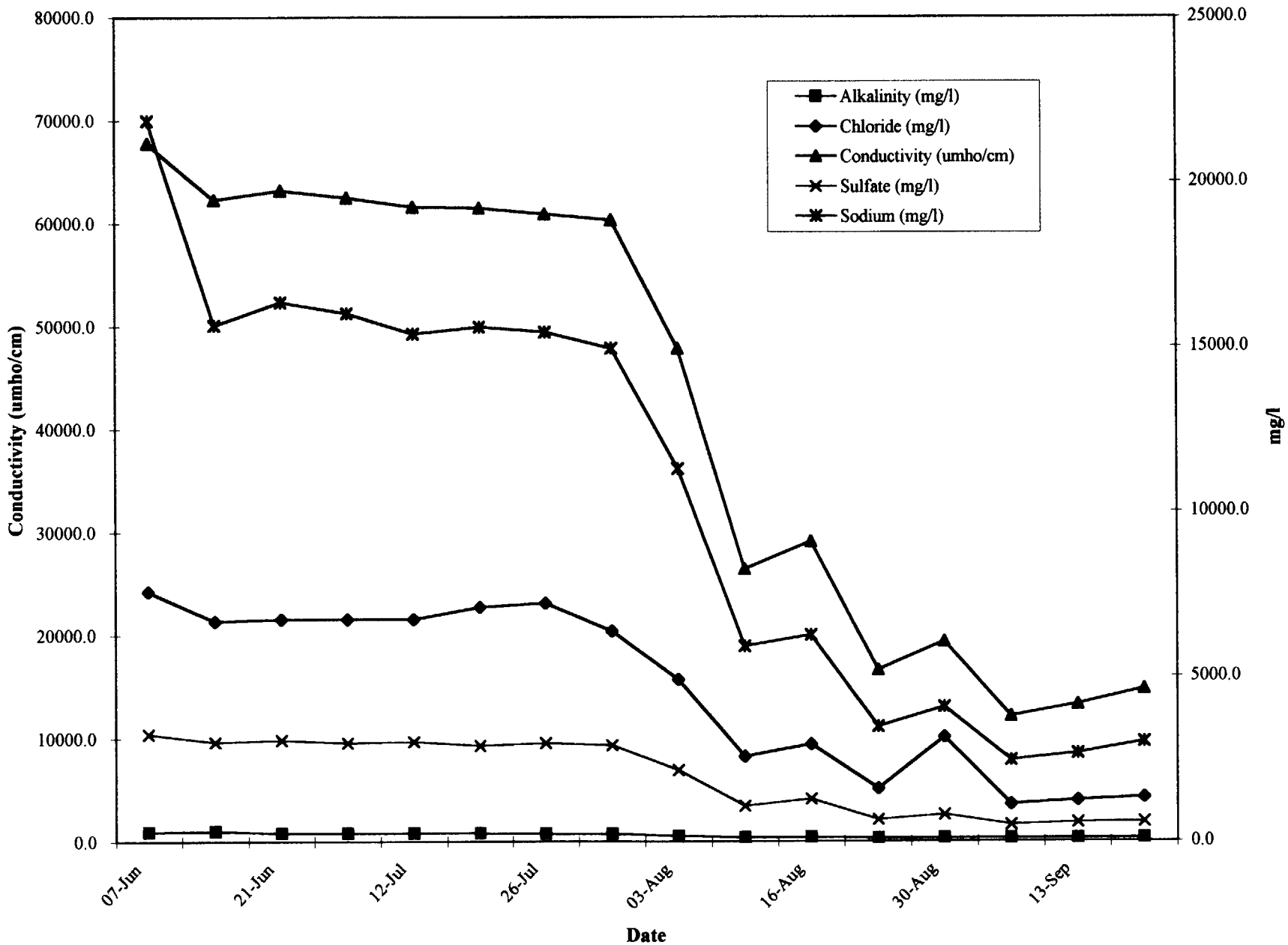
CBR has flushed and pumped the southwest underdrain since repairs were completed in early August to ensure that the conductivity is low enough to allow CBR to detect any future liner leaks. Attachment 4 contains a chart for the southwest underdrain that compares pond level with underdrain level and conductivity. The chart covers the period from January 6 through September 20, 2000 and clearly shows the affect of the liner leaks on the underdrain and that the efforts to flush the underdrain has been success. The conductivity in the southwest underdrain on September 20 was 14,790 µmho/cm and is comparatively stable. In contrast, the conductivity of the Pond 1 contents on the same date was 94,800 µmho/cm. With an action level set at a conductivity of 50 percent of the pond contents, CBR can reliably detect an increase from the current conductivity levels in the southwest underdrain should a liner leak develop in the future.

Based upon these results, CBR believes that the liner leak in Pond 1 has been successfully repaired and the underdrain returned to operational status. Weekly monitoring has been performed a minimum of 14 days following liner repairs as required in License Condition 11.4. Therefore, CBR is returning Pond 1 to routine operational status and will discontinue the weekly underdrain sampling and analysis.

Attachment 1

Pond 1 Underdrain Analysis

Pond 1 Southwest Underdrain Analytical Results



CROW BUTTE PROJECT
WEEKLY EVAPORATION POND UNDERDRAIN ANALYSIS

COMMERCIAL PONDS		UNDERDRAIN WATER DEPTH-INCHES	INSTRUMENT READING	TEMPERATURE °C	TEMPERATURE CORRECTION	CONDUCTIVITY umhos/cm	LAB MEASUREMENT
NORTH POND 1	POND CONTENTS	8'6"					88600
	N.E. UNDERDRAIN	2"					
	N.M. UNDERDRAIN	2"					
	N.W. UNDERDRAIN	4"					
	S.E. UNDERDRAIN	1"					
	S.M. UNDERDRAIN	0"					
	S.W. UNDERDRAIN	2"					61600
SOUTH POND 3	POND CONTENTS	9' 6"					91400
	N.E. UNDERDRAIN	5"					
	N.M. UNDERDRAIN	9"	700	18°	1.15	805	
	N.W. UNDERDRAIN	4"					
	S.E. UNDERDRAIN	1"					
	S.M. UNDERDRAIN	6"	2800	18°	1.15	3220	
	S.W. UNDERDRAIN	9"	700	17°	1.18	826	
POND NUMBER 4	POND CONTENTS	6' 5"					106700
	N.E. UNDERDRAIN	7"					8610
	N.M. UNDERDRAIN	14"	2200	19°	1.13	2486	
	N.W. UNDERDRAIN	6"					63600
	S.E. UNDERDRAIN	13"	13500	20°	1.11	14985	
	S.M. UNDERDRAIN	8"	1900	19°	1.13	2147	
	S.W. UNDERDRAIN	6"	3400	18°	1.15	3910	

DATE: 7-12-00

ACTION LIMIT EXCEEDED? _____

SAMPLER/ANALYST: [illegible]

REMARKS: \ water level too low to measure

12-Jul-00
SM/LG

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	µmhos	mg/L	mg/L
Pond #1 SW Underdrain	825	21,546	61,600	3,027	15,402

CROW BUTTE PROJECT
WEEKLY EVAPORATION POND UNDERDRAIN ANALYSIS

COMMERCIAL PONDS		UNDERDRAIN WATER DEPTH-INCHES	INSTRUMENT READING	TEMPERATURE °C	TEMPERATURE CORRECTION	CONDUCTIVITY umhos/cm	LAB MEASUREMENT
NORTH POND 1	POND CONTENTS	8'9"					79200
	N.E. UNDERDRAIN	2"					
	N.M. UNDERDRAIN	1"					
	N.W. UNDERDRAIN	2"					
	S.E. UNDERDRAIN	1"					
	S.M. UNDERDRAIN	0"					
	S.W. UNDERDRAIN	3"					61500
SOUTH POND 3	POND CONTENTS	9'5"					93300
	N.E. UNDERDRAIN	5"					
	N.M. UNDERDRAIN	9"	800	20°	1.11	788	
	N.W. UNDERDRAIN	3"					
	S.E. UNDERDRAIN	0"					
	S.M. UNDERDRAIN	6"	3000	20°	1.11	3330	
	S.W. UNDERDRAIN	9"	700	18°	1.15	805	
POND NUMBER 4	POND CONTENTS	6'1"					102900
	N.E. UNDERDRAIN	7"	9000	21°	1.08	9720	9570
	N.M. UNDERDRAIN	13"	2300	20°	1.11	2553	
	N.W. UNDERDRAIN	10"	—	—	—	—	66600
	S.E. UNDERDRAIN	16"	13000	18°	1.15	14950	
	S.M. UNDERDRAIN	8"	1900	20°	1.11	2109	
	S.W. UNDERDRAIN	5"					

DATE: 7-19-00

REMARKS: water level too low to measure

ACTION LIMIT EXCEEDED? _____

SAMPLER/ANALYST: [illegible]

19-Jul-00
SM/LG

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	µmhos	mg/L	mg/L
Pond #1 SW Underdrain	813	22,721	61,500	2,896	15,604

CROW BUTTE PROJECT
WEEKLY EVAPORATION POND UNDERDRAIN ANALYSIS

COMMERCIAL PONDS		UNDERDRAIN WATER DEPTH-INCHES	INSTRUMENT READING	TEMPERATURE °C	TEMPERATURE CORRECTION	CONDUCTIVITY umhos/cm	LAB MEASUREMENT
NORTH POND 1	POND CONTENTS	7' 8"					90,000
	N.E. UNDERDRAIN	2"					
	N.M. UNDERDRAIN	1"					
	N.W. UNDERDRAIN	4"					
	S.E. UNDERDRAIN	1"					
	S.M. UNDERDRAIN	1"					
	S.W. UNDERDRAIN	3"					60,900
SOUTH POND 3	POND CONTENTS	9' 3"					94,700
	N.E. UNDERDRAIN	7"	500	17°	1.18	590	
	N.M. UNDERDRAIN	9"	700	20°	1.11	888	
	N.W. UNDERDRAIN	3"					
	S.E. UNDERDRAIN	0"					
	S.M. UNDERDRAIN	5"					
	S.W. UNDERDRAIN	9"	700	19°	1.13	791	
POND NUMBER 4	POND CONTENTS	5' 11"					112,400
	N.E. UNDERDRAIN	7"	8,000	20°	1.11	8,880	5,990
	N.M. UNDERDRAIN	13"	2,200	19°	1.13	2,486	
	N.W. UNDERDRAIN	9"		21°	1.08		66,200
	S.E. UNDERDRAIN	16"	13,000	18°	1.15	14,950	
	S.M. UNDERDRAIN	7"	2,000	20°	1.11	2,220	
	S.W. UNDERDRAIN	5"					

DATE: 7/26/00

ACTION LIMIT EXCEEDED? —

SAMPLER/ANALYST: Denise Kennedy

REMARKS:

26-Jul-00
SM/LG

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	µmhos	mg/L	mg/L
Pond #1 SW Underdrain	775	23,113	60,900	2,980	15,453

CROW BUTTE PROJECT
WEEKLY EVAPORATION POND UNDERDRAIN ANALYSIS

COMMERCIAL PONDS		UNDERDRAIN WATER DEPTH-INCHES	INSTRUMENT READING	TEMPERATURE °C	TEMPERATURE CORRECTION	CONDUCTIVITY umhos/cm	LAB MEASUREMENT
NORTH POND 1	POND CONTENTS	7'6"					91,100
	N.E. UNDERDRAIN	2"					
	N.M. UNDERDRAIN	1"					
	N.W. UNDERDRAIN	4"					
	S.E. UNDERDRAIN	1"					
	S.M. UNDERDRAIN	6"					
	S.W. UNDERDRAIN	3"					60,300
SOUTH POND 3	POND CONTENTS	0'1"					95,900
	N.E. UNDERDRAIN	7"					610
	N.M. UNDERDRAIN	7"	700	21°	1.07	764	
	N.W. UNDERDRAIN	3"					
	S.E. UNDERDRAIN	0"					
	S.M. UNDERDRAIN	5"					
	S.W. UNDERDRAIN	9"	700	19°	1.13	791	
POND NUMBER 4	POND CONTENTS	5'9"					116,500
	N.E. UNDERDRAIN	6"		22°	1.06		4690
	N.M. UNDERDRAIN	13"	2,300	20°	1.11	2,553	
	N.W. UNDERDRAIN	10"		22°	1.06		66,200
	S.E. UNDERDRAIN	16"	13,000	20°	1.11	14,430	
	S.M. UNDERDRAIN	9"	2,100	21°	1.07	2,267	
	S.W. UNDERDRAIN	5"					

DATE: 8-2-00

REMARKS:

ACTION LIMIT EXCEEDED? _____

SAMPLER/ANALYST: Damian Kennedy

02-Aug-00
SM/LG

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	µmhos	mg/L	mg/L
Pond #1 SW Underdrain	750	20,371	60,300	2,915	14,948

03-Aug-00
SM/LG

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	µmhos	mg/L	mg/L
Pond #1 SW Underdrain	560	15,670	47,800	2,156	11,288

CROW BUTTE PROJECT
WEEKLY EVAPORATION POND UNDERDRAIN ANALYSIS

COMMERCIAL PONDS		UNDERDRAIN WATER DEPTH-INCHES	INSTRUMENT READING	TEMPERATURE °C	TEMPERATURE CORRECTION	CONDUCTIVITY umhos/cm	LAB MEASUREMENT
NORTH POND 1	POND CONTENTS	8'6"	—	—			91,000
	N.E. UNDERDRAIN	2"	—	—			
	N.M. UNDERDRAIN	0"	—	—			
	N.W. UNDERDRAIN	4"	—	—			
	S.E. UNDERDRAIN	1"	—	—			
	S.M. UNDERDRAIN	0"	—	—			
	S.W. UNDERDRAIN	3"	16000	21°	1.08	17280	26,400
SOUTH POND 3	POND CONTENTS	9'1"	—	—			96,800
	N.E. UNDERDRAIN	8"	500	17°	1.18	590	
	N.M. UNDERDRAIN	11"	800	24°	1.02	816	
	N.W. UNDERDRAIN	3"	—	—	—		
	S.E. UNDERDRAIN	0"	—	—	—		
	S.M. UNDERDRAIN	7"	3175	20°	1.11	3524	
	S.W. UNDERDRAIN	9"	700	19°	1.13	791	
POND NUMBER 4	POND CONTENTS	5'11"	—	—			117,400
	N.E. UNDERDRAIN	8"	1025	22°	1.06	1086	798
	N.M. UNDERDRAIN	13"	2275	21°	1.08	2457	
	N.W. UNDERDRAIN	9"	21,000	22°	1.06	22,260	25,400
	S.E. UNDERDRAIN	16"	13,500	21°	1.08	14580	
	S.M. UNDERDRAIN	11"	2000	21°	1.08	2160	
	S.W. UNDERDRAIN	11"	5000	22°	1.06	5300	

DATE: 8-9-00

ACTION LIMIT EXCEEDED? NO

SAMPLER/ANALYST: P.S. / P.S.

REMARKS:

09-Aug-00
SM/LG

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	µmhos	mg/L	mg/L
Pond #1 SW Underdrain	385	8,227	26,400	1,070	5,904

CROW BUTTE PROJECT
WEEKLY EVAPORATION POND UNDERDRAIN ANALYSIS

COMMERCIAL PONDS		UNDERDRAIN WATER DEPTH-INCHES	INSTRUMENT READING	TEMPERATURE °C	TEMPERATURE CORRECTION	CONDUCTIVITY umhos/cm	LAB MEASUREMENT
NORTH POND 1	POND CONTENTS	8'5"					92,800
	N.E. UNDERDRAIN	2"					
	N.M. UNDERDRAIN	2"					
	N.W. UNDERDRAIN	3"					
	S.E. UNDERDRAIN	2"					
	S.M. UNDERDRAIN	0"					
	S.W. UNDERDRAIN	3"	17000	21°	1.08	18360	29,100
SOUTH POND 3	POND CONTENTS	9'0"					99400
	N.E. UNDERDRAIN	7"	500	11°	1.37	685	
	N.M. UNDERDRAIN	9"	800	21°	1.08	864	
	N.W. UNDERDRAIN	3"					
	S.E. UNDERDRAIN	1"					
	S.M. UNDERDRAIN	6"	3200	21°	1.08	2484	
	S.W. UNDERDRAIN	9"	600	24°	1.02	612	
POND NUMBER 4	POND CONTENTS	5'4"					123,000
	N.E. UNDERDRAIN	6"	1600	21°	1.08	1728	1888
	N.M. UNDERDRAIN	13"	2300	21°	1.08	2484	
	N.W. UNDERDRAIN	6"	12000	30°	.90	10800	18800
	S.E. UNDERDRAIN	16"	12000	21°	1.08	12960	
	S.M. UNDERDRAIN	9"	1900	22°	1.06	2014	
	S.W. UNDERDRAIN	6"	4700	23°	1.04	4888	

DATE: 8 16 00

ACTION LIMIT EXCEEDED? _____

SAMPLER/ANALYST: BJ

REMARKS: \ water level too low to measure

16-Aug-00
SM/LG

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	µmhos	mg/L	mg/L
Pond #1 SW Underdrain	410	9,402	29,100	1,280	6,252

CROW BUTTE PROJECT
WEEKLY EVAPORATION POND UNDERDRAIN ANALYSIS

COMMERCIAL PONDS		UNDERDRAIN WATER DEPTH-INCHES	INSTRUMENT READING	TEMPERATURE °C	TEMPERATURE CORRECTION	CONDUCTIVITY umhos/cm	LAB MEASUREMENT
NORTH POND 1	POND CONTENTS	8'2"					86700
	N.E. UNDERDRAIN	1"					
	N.M. UNDERDRAIN	~~0~~ 1"					
	N.W. UNDERDRAIN	3"					
	S.E. UNDERDRAIN	1"					
	S.M. UNDERDRAIN	1"					
	S.W. UNDERDRAIN	2"	15900	19	1.13	16950	16610
SOUTH POND #3	POND CONTENTS	8' 9"					101200
	N.E. UNDERDRAIN	6"	550	19°	1.13	622	
	N.M. UNDERDRAIN	9"	800	19°	1.13	904	
	N.W. UNDERDRAIN	3"					
	S.E. UNDERDRAIN	1"					
	S.M. UNDERDRAIN	6"	19000	18°	1.15	21'850	32500
	S.W. UNDERDRAIN	10"	800	20°	1.11	888	
POND NUMBER 4	POND CONTENTS	5'7"					126600
	N.E. UNDERDRAIN	7"	~~5000~~ 1900	21°	1.08	~~5400~~ 2052	1,694
	N.M. UNDERDRAIN	14"	2300	20°	1.11	2553	
	N.W. UNDERDRAIN	7"	23000	21°	1.08	24840	25100
	S.E. UNDERDRAIN	16"	13000	20°	1.11	14430	
	S.M. UNDERDRAIN	9"	2000	20	1.11	2220	
	S.W. UNDERDRAIN	6"	4700	20°	1.11	5217	

DATE: 8 23 00

REMARKS: \ Water too to Measure

ACTION LIMIT EXCEEDED? _____

SAMPLER/ANALYST: AH

23-Aug-00
SM/LG

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	µmhos	mg/L	mg/L
Pond #1 SW Underdrain	330	5,093	16,610	652	3,476

CROW BUTTE PROJECT
WEEKLY EVAPORATION POND UNDERDRAIN ANALYSIS

COMMERCIAL PONDS		UNDERDRAIN WATER DEPTH-INCHES	INSTRUMENT READING	TEMPERATURE °C	TEMPERATURE CORRECTION	CONDUCTIVITY umhos/cm	LAB MEASUREMENT
NORTH POND 1	POND CONTENTS	8'2"					95,600
	N.E. UNDERDRAIN	2"					
	N.M. UNDERDRAIN	2"					
	N.W. UNDERDRAIN	4"					
	S.E. UNDERDRAIN	0"					
	S.M. UNDERDRAIN	0"					
	S.W. UNDERDRAIN	23"	12000	21°	1.08	12960	19360
SOUTH POND 3	POND CONTENTS	8'7"					91,700
	N.E. UNDERDRAIN	7"	500	18°	1.15	575	
	N.M. UNDERDRAIN	9"	800	20°	1.11	888	
	N.W. UNDERDRAIN	3"					
	S.E. UNDERDRAIN	1"					
	S.M. UNDERDRAIN	5"	14000	20°	1.11	15540	27900
	S.W. UNDERDRAIN	9"	700	21°	1.08	756	
POND NUMBER 4	POND CONTENTS	5'5"					132,400
	N.E. UNDERDRAIN	6"	3100	21°	1.08	3348	2260
	N.M. UNDERDRAIN	15"	2300	22°	1.06	2438	
	N.W. UNDERDRAIN	9"	22000	21°	1.08	23760	24800
	S.E. UNDERDRAIN	17"	13000	19°	1.13	14690	
	S.M. UNDERDRAIN	9"	2100	21°	1.08	2268	
	S.W. UNDERDRAIN	6"	4900	21°	1.08	5292	

DATE: 8-30-00

ACTION LIMIT EXCEEDED? _____

SAMPLER/ANALYST: BL MB

REMARKS: Water level too low to Measure

30-Aug-00
SM/LG

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	µmhos	mg/L	mg/L
Pond #1 SW Underdrain	355	10,087	19,360	803	4,074

R.P W-72 E-8'5"

CROW BUTTE PROJECT
WEEKLY EVAPORATION POND UNDERDRAIN ANALYSIS

COMMERCIAL PONDS		UNDERDRAIN WATER DEPTH-INCHES	INSTRUMENT READING	TEMPERATURE °C	TEMPERATURE CORRECTION	CONDUCTIVITY umhos/cm	LAB MEASUREMENT
NORTH POND 1	POND CONTENTS	8'2"	\	\	\	\	94700
	N.E. UNDERDRAIN	1"	\	\	\	\	\
	N.M. UNDERDRAIN	1"	\	\	\	\	\
	N.W. UNDERDRAIN	3"	\	\	\	\	\
	S.E. UNDERDRAIN	1"	\	\	\	\	\
	S.M. UNDERDRAIN	0.	\	\	\	\	\
	S.W. UNDERDRAIN	4"	3300	45°	*	*	12130
SOUTH POND 3	POND CONTENTS	8'6"	\	\	\	\	101600
	N.E. UNDERDRAIN	5"	\	\	\	\	
	N.M. UNDERDRAIN	9"	700	20°	1.11	777	
	N.W. UNDERDRAIN	3"	\	\	\	\	
	S.E. UNDERDRAIN	0"	\	\	\	\	
	S.M. UNDERDRAIN	5"	11000	20°	1.11	12210	25300
	S.W. UNDERDRAIN	10"	700	20°	1.11	777	
POND NUMBER 4	POND CONTENTS	4'11"	\	\	\	\	131400
	N.E. UNDERDRAIN	10"	370	45°	*	*	671
	N.M. UNDERDRAIN	14"	2300	21°	1.08	2484	
	N.W. UNDERDRAIN	10"	2100	21°	1.08	2268	20700
	S.E. UNDERDRAIN	16"	12000	19°	1.13	13560	
	S.M. UNDERDRAIN	8"	2100	20°	1.11	2331	
	S.W. UNDERDRAIN	5"	4800	20°	1.11	5328	

DATE: 9/6/00

ACTION LIMIT EXCEEDED? _____

SAMPLER/ANALYST: MB - BL

REMARKS: \ Water level too low to Measure
* pumped fresh water out of Mit Tank water Real Warm

06-Sep-00
SM/LG

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	µmhos	mg/L	mg/L
Pond #1 SW Underdrain	320	3,583	12,130	503	2,456

CROW BUTTE PROJECT
WEEKLY EVAPORATION POND UNDERDRAIN ANALYSIS

COMMERCIAL PONDS		UNDERDRAIN WATER DEPTH-INCHES	INSTRUMENT READING	TEMPERATURE °C	TEMPERATURE CORRECTION	CONDUCTIVITY umhos/cm	LAB MEASUREMENT
NORTH POND 1	POND CONTENTS	8'5"					94600
	N.E. UNDERDRAIN	2"					
	N.M. UNDERDRAIN	2"					
	N.W. UNDERDRAIN	4"					
	S.E. UNDERDRAIN	1"					
	S.M. UNDERDRAIN	0"				10,620	
	S.W. UNDERDRAIN	3"	~~7500~~ 9000	17°	1.18	~~885~~	13310
SOUTH POND 3	POND CONTENTS	8'6"					105200
	N.E. UNDERDRAIN	5"					
	N.M. UNDERDRAIN	9"	800	21°	1.08	864	
	N.W. UNDERDRAIN	3"					
	S.E. UNDERDRAIN	1"					
	S.M. UNDERDRAIN	5"	12000	18°	1.15	13800	21900
	S.W. UNDERDRAIN	10"	700	19°	1.13	791	
POND NUMBER 4	POND CONTENTS	5'					137600
	N.E. UNDERDRAIN	10"	1200	18°	1.15	1380	2200
	N.M. UNDERDRAIN	14"	2200	19°	1.13	2486	
	N.W. UNDERDRAIN	9"	20000	19°	1.13	22600	24300
	S.E. UNDERDRAIN	15"	12000	23°	1.04	12480	
	S.M. UNDERDRAIN	9"	2000	21°	1.08	2160	
	S.W. UNDERDRAIN	5"					

DATE: 9/13/00

ACTION LIMIT EXCEEDED? _____

SAMPLER/ANALYST: Mat / BL

REMARKS:

13-Sep-00
SM/LG

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	µmhos	mg/L	mg/L
Pond #1 SW Underdrain	330	3,960	13,310	578	2,667

CROW BUTTE PROJECT
WEEKLY EVAPORATION POND UNDERDRAIN ANALYSIS

COMMERCIAL PONDS		UNDERDRAIN WATER DEPTH-INCHES	INSTRUMENT READING	TEMPERATURE °C	TEMPERATURE CORRECTION	CONDUCTIVITY umhos/cm	LAB MEASUREMENT
NORTH POND 1	POND CONTENTS	8'2"					94,800
	N.E. UNDERDRAIN	0"					
	N.M. UNDERDRAIN	1"					
	N.W. UNDERDRAIN	3"					
	S.E. UNDERDRAIN	1"					
	S.M. UNDERDRAIN	0"					14,790 (?)
	S.W. UNDERDRAIN	3"	8000	19°	1.13	9040	~~3024~~
SOUTH POND 3	POND CONTENTS	8'4"					96,400
	N.E. UNDERDRAIN	6"	500	22°	1.06	530	
	N.M. UNDERDRAIN	8"	800	21°	1.08	864	
	N.W. UNDERDRAIN	3"					
	S.E. UNDERDRAIN	0"					
	S.M. UNDERDRAIN	5"	13000	17°	1.18	15340	27700
	S.W. UNDERDRAIN	9"	700	17°	1.18	826	
POND NUMBER 4	POND CONTENTS	5'3"					141400
	N.E. UNDERDRAIN	8"	1000	18°	1.15	1150	3320
	N.M. UNDERDRAIN	14"	2200	19°	1.13	2486	
	N.W. UNDERDRAIN	8"	13000	19°	1.13	14690	17580
	S.E. UNDERDRAIN	16"	13000	24°	1.02	13260	
	S.M. UNDERDRAIN	9"	2100	23°	1.04	2184	
	S.W. UNDERDRAIN	5"	5000	22°	1.06	5300	

DATE: 9/20/00

ACTION LIMIT EXCEEDED? _____

SAMPLER/ANALYST: Mat Ibl

REMARKS:

20-Sep-00
SM/LG

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	µmhos	mg/L	mg/L
Pond #1 SW Underdrain	360	4,243	14,790	602	3,024

Attachment 2

Pond Monitor Well CPM-1 and CPM-2 Analysis

WELL SAMPLING SHEET

Date: 6-19-00

Water Level (TOC): 46.09

Sample ID No.:

Casing Height: 1.8

Well Number: CPM 1 (South monitor well)

Water Level (TOC - CH): 44.29

Aquifer: Brule

Measuring Point: at wellhead

Sample Method: pumpjack/submersible

Casing Volume: 28 35

Sampling Technician: P.P.

Time Start Pumping: 1:13

SAMPLE TIME	pH	TEMP	SPECIFIC CONDUCTIVITY (umhos)	FLOW RATE (gpm)	TOTAL GALLONS PUMPED
1:19	8.27	16.9	x = 396	2	35
			x =		
			x =		
			x =		
			x =		
			x =	Total Gallons Pumped	41

Quantity of Sample Taken @ 4°UF : 1 liter

Sample Taken @ 4°F:

Acidified-HNO_3 F:

Acidified-H_2SO_4 F:

LABORATORIES	TYPE OF ANALYSIS	DATE SHIPPED
CBR	Na, Cl, SO_4, Cond, Alk	

REMARKS: Sampled after leak was discovered in pond #1-SW underdrain.

Sampled 6/19/00
20-Jun-00
LG/HD

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	µmhos	mg/L	mg/L
Commercial Pond Monitor #1	198	3.1	424	12	16
Commercial Pond Monitor #2	185	5.4	421	13	15

WELL SAMPLING SHEET

Date: 6-19-00

Water Level (TOC): 37.33

Sample ID No.:

Casing Height: 1.5

Well Number: CPW2 [illegible]

Water Level (TOC - CH): 37.83

Aquifer: Brule

Measuring Point: at wellhead

Sample Method: pumpjack/submersible

Casing Volume: 31 39

Sampling Technician: [illegible]

Time Start Pumping: 1:25

SAMPLE TIME	pH	TEMP	SPECIFIC CONDUCTIVITY (umhos)	FLOW RATE (gpm)	TOTAL GALLONS PUMPED
1:28	8.22	16.2	x = 376	16	39
			x =		
			x =		
			x =		
			x =		
			x =	Total Gallons Pumped	56

Quantity of Sample Taken @ 4°UF : 1 liter

Sample Taken @ 4°F:

Acidified-HNO_3 F:

Acidified-H_2SO_4 F:

LABORATORIES	TYPE OF ANALYSIS	DATE SHIPPED
CBR	Na, Cl, SO_4, Cond, Alk	

REMARKS: Sampled After leak was discovered in Pond #1-SW underdrain.

Sampled 6/19/00
20-Jun-00
LG/HD

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	µmhos	mg/L	mg/L
Commercial Pond Monitor #1	198	3.1	424	12	16
Commercial Pond Monitor #2	185	5.4	421	13	15

14-Jul-00
SM/LG

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	umhos	mg/L	mg/L
Commercial Pond Monitor #1	200	3.1	425	12	16
Commercial Pond Monitor #2	185	4.2	420	13	15

10-Aug-00
SM/LG

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	umhos	mg/L	mg/L
Commercial Pond Monitor #1	195	1.5	420	12	17
Commercial Pond Monitor #2	190	3.0	420	12	16
R & D Pond	150	0.7	400	7.6	17

WELL SAMPLING SHEET

Date: 8-28-00

Water Level (TOC): 46.18

Sample ID No.: South Pens Monitor

Casing Height: 1.8

Well Number: CPM 1

Water Level (TOC - CH): 44.38

Aquifer: Brule

Measuring Point: at wellhead

Sample Method: pumpjack/submersible

Casing Volume: 28 35

Sampling Technician: [illegible]

Time Start Pumping: 1:43

SAMPLE TIME	pH	TEMP	SPECIFIC CONDUCTIVITY (umhos)	FLOW RATE (gpm)	TOTAL GALLONS PUMPED
2:20	7.78	16.8	x = 408	1.6	35
			x =		
			x =		
			x =		
			x =		
			x =	Total Gallons Pumped	36

Quantity of Sample Taken @ 4°UF : 1 liter

Sample Taken @ 4°F:

Acidified-HNO_3 F:

Acidified-H_2SO_4 F:

LABORATORIES	TYPE OF ANALYSIS	DATE SHIPPED
CBR	Na, Cl, SO_4, Cond, Alk	

REMARKS:

28-Aug-00
SM/LG

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	umhos	mg/L	mg/L
Commercial Pond Monitor #1	200	2.8	426	12	15
Commercial Pond Monitor #2	190	4.2	420	12	13

WELL SAMPLING SHEET

Date: 8-28-00

Sample ID No.: North Pond Monitor

Well Number: CPM 2

Aquifer: Brule

Sample Method: pumpjack/submersible

Sampling Technician: RCJ

Water Level (TOC): 39.63

Casing Height: 1.5

Water Level (TOC - CH): 38.13

Measuring Point: at wellhead

Casing Volume: 31 39

Time Start Pumping: 1:54

SAMPLE TIME	pH	TEMP	SPECIFIC CONDUCTIVITY (umhos)	FLOW RATE (gpm)	TOTAL GALLONS PUMPED
1:57	7.82	16.1	x = 396	14	39
			x =		
			x =		
			x =		
			x =		
			x =	Total Gallons Pumped	57

Quantity of Sample Taken @ 4°UF : 1 liter

Sample Taken @ 4°F:

Acidified-HNO_3 F:

Acidified-H_2SO_4 F:

LABORATORIES	TYPE OF ANALYSIS	DATE SHIPPED
CBR	Na, Cl, SO_4, Cond, Alk	

REMARKS:

28-Aug-00
SM/LG

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	umhos	mg/L	mg/L
Commercial Pond Monitor #1	200	2.8	426	12	15
Commercial Pond Monitor #2	190	4.2	420	12	13

Attachment 3

Commercial Pond Inspection Forms

CROW BUTTE MINE

COMMERCIAL POND INSPECTION FORM

For The Week Of [illegible] Through 2-3-00

CHECK ACCORDINGLY: |=OK X=NEEDS ATTENTION OR REPAIRS

LOCATION	FREQUENCY	SUN	MON	TUE	WED	THU	FRI	SAT
POND 1-DEPTH	Daily	8'5"	8'5"	8'7"	8'7"	8'7"	8'7"	8'6"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly				0"			
N.M. UNDERDRAIN	Weekly				1"			
N.W. UNDERDRAIN	Weekly				4"			
S.E. UNDERDRAIN	Weekly				0"			
S.M. UNDERDRAIN	Weekly				0"			
S.W. UNDERDRAIN	Weekly	2"	2"	2"	3"	3"	3"	2"
POND 3-DEPTH	Daily	9'7"	9'7"	9'6"	9'6"	9'6"	9'6"	9'7"
EMBANKMENTS	Daily			✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly				7"			
N.M. UNDERDRAIN	Weekly				4"			
N.W. UNDERDRAIN	Weekly				3"			
S.E. UNDERDRAIN	Weekly				0"			
S.M. UNDERDRAIN	Weekly				7"			
S.W. UNDERDRAIN	Weekly				11"			
POND 4-DEPTH	Daily	6'7"	6'7"	6'3"	6'3"	6'2"	6'2"	6'3"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly	10"	10"	10"	10"	10"	10"	7"
N.M. UNDERDRAIN	Weekly				15"	~~75"~~		
N.W. UNDERDRAIN	Weekly	7"	8"	8"	8"	9"	9"	6.5"
S.E. UNDERDRAIN	Weekly				16"			
S.M. UNDERDRAIN	Weekly				11"			
S.W. UNDERDRAIN	Weekly				11"			
INSPECTED INLET PIPING	Weekly				✓			
PERIMETER FENCE	Weekly				✓			
INSPECTED LINERS	Weekly				✓			
INSPECTED DIVERSION DITCHES	Monthly							
INSPECTED WASTE PIPELINE	Monthly							
OTHER (EXPLAIN BELOW)								
INSPECTOR INITIAL HERE ▶		TC	TC	VOM	VOM	VOM	VOM	TC

COMMENTS: N.W. corner P#4 gopher mound, about ½ way down slop.

CROW BUTTE MINE

COMMERCIAL POND INSPECTION FORM

For The Week Of 7-9-00 through 7-15-00

CHECK ACCORDINGLY: ✓=OK X=NEEDS ATTENTION OR REPAIRS

LOCATION	FREQUENCY	SUN	MON	TUE	WED	THU	FRI	SAT
POND 1-DEPTH	Daily	8'[illegible]"	8'6"	8'6"	8'6"	8'6"	8'6"	8'8"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly				2"			
N.M. UNDERDRAIN	Weekly				2"			
N.W. UNDERDRAIN	Weekly				4"			
S.E. UNDERDRAIN	Weekly				1"			
S.M. UNDERDRAIN	Weekly				0"			
S.W. UNDERDRAIN	Weekly	2"	2"	2"	2"	2	2	2"
POND 3-DEPTH	Daily	9'7"	9'7"	9'6"	9'6"	9'6"	9'6"	9'6"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly				5"			
N.M. UNDERDRAIN	Weekly				9"			
N.W. UNDERDRAIN	Weekly				4"			
S.E. UNDERDRAIN	Weekly				1"			
S.M. UNDERDRAIN	Weekly				6"			
S.W. UNDERDRAIN	Weekly				9"			
POND 4-DEPTH	Daily	6'3"	6'3"	6'5"	6'5"	6'3"	6'3"	6'4"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly	7"	7"	7"	7"	7"	7"	7"
N.M. UNDERDRAIN	Weekly				14"			
N.W. UNDERDRAIN	Weekly	6½"	6"	6"	6"	6"	8"	9"
S.E. UNDERDRAIN	Weekly				13"			
S.M. UNDERDRAIN	Weekly				8"			
S.W. UNDERDRAIN	Weekly				6"			
INSPECTED INLET PIPING	Weekly				✓			
PERIMETER FENCE	Weekly				✓			
INSPECTED LINERS	Weekly				✓			
INSPECTED DIVERSION DITCHES	Monthly							
INSPECTED WASTE PIPELINE	Monthly							
OTHER (EXPLAIN BELOW)								
INSPECTOR INITIAL HERE ▶		KC	SL	BK/DK	BK	DK	DK	[illegible]

COMMENTS:

CROW BUTTE MINE

COMMERCIAL POND INSPECTION FORM

For The Week Of 7-16-00 through 7-22-00

CHECK ACCORDINGLY: ✓=OK X=NEEDS ATTENTION OR REPAIRS

LOCATION	FREQUENCY	SUN	MON	TUE	WED	THU	FRI	SAT
POND 1-DEPTH	Daily	8'9"	8'9"	8'8"	8'9"	8'6"	8'6"	8'6"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly				2"			
N.M. UNDERDRAIN	Weekly				1"			
N.W. UNDERDRAIN	Weekly				2"			
S.E. UNDERDRAIN	Weekly				1"			
S.M. UNDERDRAIN	Weekly				0"			
S.W. UNDERDRAIN	Weekly	2"	3"	3"	3"	2"	2"	2"
POND 3-DEPTH	Daily	9'6"	9'6"	9'6"	9'5"	9'5"	9'5"	9'4"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly				5"			
N.M. UNDERDRAIN	Weekly				9"			
N.W. UNDERDRAIN	Weekly				3"			
S.E. UNDERDRAIN	Weekly				0"			
S.M. UNDERDRAIN	Weekly				6"			
S.W. UNDERDRAIN	Weekly				8"			
POND 4-DEPTH	Daily	6'2"	6'3"	6'	6'1"	6'3"	6'3"	6'3"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly	7"	7"	8"	7"	7"	7"	7"
N.M. UNDERDRAIN	Weekly				13"			
N.W. UNDERDRAIN	Weekly	9"	9"	10"	10"	8.5"	9"	9"
S.E. UNDERDRAIN	Weekly				16"			
S.M. UNDERDRAIN	Weekly				8"			
S.W. UNDERDRAIN	Weekly				5."			
INSPECTED INLET PIPING	Weekly				✓			
PERIMETER FENCE	Weekly				✓			
INSPECTED LINERS	Weekly				✓			
INSPECTED DIVERSION DITCHES	Monthly							
INSPECTED WASTE PIPELINE	Monthly							
OTHER (EXPLAIN BELOW)								
INSPECTOR INITIAL HERE ▶		JE	[illegible]	AK	Damian Kennedy	GH	GH	GH

COMMENTS:

CROW BUTTE MINE

COMMERCIAL POND INSPECTION FORM

For The Week Of 7-23-00 through 7-29-00

CHECK ACCORDINGLY: ✓=OK X=NEEDS ATTENTION OR REPAIRS

LOCATION	FREQUENCY	SUN	MON	TUE	WED	THU	FRI	SAT
POND 1-DEPTH	Daily	8'6"	8'6"	8'5"	8'8"	8'8"	8'6"	8'6"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly				2"			
N.M. UNDERDRAIN	Weekly				1"			
N.W. UNDERDRAIN	Weekly				4"			
S.E. UNDERDRAIN	Weekly				1"			
S.M. UNDERDRAIN	Weekly				0"			
S.W. UNDERDRAIN	Weekly	2"	2"	2"	3"	3"	3"	2"
POND 3-DEPTH	Daily	9'4"	9'4"	9'3"	9'3"	9'3"	9'3"	9'3"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly				7"	7"	8"	8"
N.M. UNDERDRAIN	Weekly				9"			
N.W. UNDERDRAIN	Weekly				3"			
S.E. UNDERDRAIN	Weekly				0"			
S.M. UNDERDRAIN	Weekly				5"			
S.W. UNDERDRAIN	Weekly				9"			
POND 4-DEPTH	Daily	6'8"	6'8"	6'6"	5'11"	5'10"	6'1"	6'1"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly	7"	7"	7"	8"	9"	10"	10"
N.M. UNDERDRAIN	Weekly				13"			
N.W. UNDERDRAIN	Weekly	9"	9"	9"	9"	9"	9"	9"
S.E. UNDERDRAIN	Weekly				16"			
S.M. UNDERDRAIN	Weekly				8"			
S.W. UNDERDRAIN	Weekly				5"			
INSPECTED INLET PIPING	Weekly				✓			
PERIMETER FENCE	Weekly				✓			
INSPECTED LINERS	Weekly				✓			
INSPECTED DIVERSION DITCHES	Monthly						✓	
INSPECTED WASTE PIPELINE	Monthly						✓	
OTHER (EXPLAIN BELOW)								
INSPECTOR INITIAL HERE ▶		SH	BL	BL	Damian Kennedy	DK	SH BL	SH

COMMENTS:

CROW BUTTE MINE

COMMERCIAL POND INSPECTION FORM

For The Week Of 7-30-00 through [illegible]

CHECK ACCORDINGLY: ✓=OK X=NEEDS ATTENTION OR REPAIRS

LOCATION	FREQUENCY	SUN	MON	TUE	WED	THU	FRI	SAT
POND 1-DEPTH	Daily	8'6"	8'5"	8'5"	8'6"	8'7"	8'7"	8'7"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly				2"			
N.M. UNDERDRAIN	Weekly				1"			
N.W. UNDERDRAIN	Weekly				4"			
S.E. UNDERDRAIN	Weekly	X	X	[illegible]	1"			
S.M. UNDERDRAIN	Weekly				0"			
S.W. UNDERDRAIN	Weekly	2"	2"	3"	3"	5"	3"	3"
POND 3-DEPTH	Daily	9'3"	9'3"	9'3"	9'1"	9'0"	9'1"	9'2"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly	8"	8"	8"	8"			
N.M. UNDERDRAIN	Weekly				8"			
N.W. UNDERDRAIN	Weekly				3"			
S.E. UNDERDRAIN	Weekly				0"			
S.M. UNDERDRAIN	Weekly				5"			
S.W. UNDERDRAIN	Weekly				9"			
POND 4-DEPTH	Daily	6'1"	6'1"	5'11"	5'9"	5'9"	5'9"	8'8"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly	9"	9"	9"	6"	6"	6"	5"
N.M. UNDERDRAIN	Weekly	~~9"~~	~~9"~~	~~10"~~	13"			
N.W. UNDERDRAIN	Weekly	9"	9"	10"	10"	13"	9"	8"
S.E. UNDERDRAIN	Weekly				16"			
S.M. UNDERDRAIN	Weekly				9"			
S.W. UNDERDRAIN	Weekly				5"			
INSPECTED INLET PIPING	Weekly				✓			
PERIMETER FENCE	Weekly				✓			
INSPECTED LINERS	Weekly				✓			
INSPECTED DIVERSION DITCHES	Monthly							
INSPECTED WASTE PIPELINE	Monthly							
OTHER (EXPLAIN BELOW)								
INSPECTOR INITIAL HERE ▶		[illegible]	[illegible]	DK	DK	DK	DK	[illegible]

COMMENTS: Note pumped 250 gal into Pd 4 NE on 7-27-00
pumped 1 hour out of Pd 4 NE on 7-31-00

CROW BUTTE MINE

COMMERCIAL POND INSPECTION FORM

For The Week Of 6 Aug '00 through 12 Aug '00

CHECK ACCORDINGLY: |=OK X=NEEDS ATTENTION OR REPAIRS

LOCATION	FREQUENCY	SUN	MON	TUE	WED	THU	FRI	SAT
POND 1-DEPTH	Daily	8'7"	8'7"	8'7"	8'6"	8'6"	8'6"	8'6"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓		✓
N.E. UNDERDRAIN	Weekly				2"			
N.M. UNDERDRAIN	Weekly				1"			
N.W. UNDERDRAIN	Weekly				4"			
S.E. UNDERDRAIN	Weekly				1"			
S.M. UNDERDRAIN	Weekly				0"			
S.W. UNDERDRAIN	Weekly	3"	3"	7"	3"	4"	4"	4"
POND 3-DEPTH	Daily	9'2"	9'2"	9'1"	9'1"	9'1"	9'1"	9'1"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly				8"			
N.M. UNDERDRAIN	Weekly				11"			
N.W. UNDERDRAIN	Weekly				3"			
S.E. UNDERDRAIN	Weekly				0"			
S.M. UNDERDRAIN	Weekly				7"			
S.W. UNDERDRAIN	Weekly				9"			
POND 4-DEPTH	Daily	5'8"	5'8"	5'7"	5'11"	5'11"	5'11"	5'11"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly	5"	5"	14"	8"	8"	9"	9"
N.M. UNDERDRAIN	Weekly				13			
N.W. UNDERDRAIN	Weekly	8"	8"	13"	9"	8"	9"	9"
S.E. UNDERDRAIN	Weekly				16			
S.M. UNDERDRAIN	Weekly				11" B.			
S.W. UNDERDRAIN	Weekly				11" Fs.			
INSPECTED INLET PIPING	Weekly				✓			
PERIMETER FENCE	Weekly				✓			
INSPECTED LINERS	Weekly				✓			
INSPECTED DIVERSION DITCHES	Monthly							
INSPECTED WASTE PIPELINE	Monthly							
OTHER (EXPLAIN BELOW)								
INSPECTOR INITIAL HERE ▶		vm	vm	vm	P.S.	PC	PC	PC

COMMENTS: 8-7-00 pumped 300 gal into each of S.W. P1, N.E, N.W. P4 under drains after pumping them out.
8-8-00 11:45 S.W. under drain in P1 pumped out
8-8-00 16:00 N.E under drain in P4 pumped out

CROW BUTTE MINE

COMMERCIAL POND INSPECTION FORM

For The Week Of 13 Aug '00 through 19 Aug '00

CHECK ACCORDINGLY: ✓=OK X=NEEDS ATTENTION OR REPAIRS

LOCATION	FREQUENCY	SUN	MON	TUE	WED	THU	FRI	SAT
POND 1-DEPTH	Daily	8'6"	8'5"	8'5"	8'5"	8'5"	8'4"	8'4"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓		✓
N.E. UNDERDRAIN	Weekly				2"			
N.M. UNDERDRAIN	Weekly				2"			
N.W. UNDERDRAIN	Weekly				3"			
S.E. UNDERDRAIN	Weekly				2"			
S.M. UNDERDRAIN	Weekly				0"			
S.W. UNDERDRAIN	Weekly	4"	4"	3"	3"	3"	3"	3"
POND 3-DEPTH	Daily	9'1"	9'0"	9'0"	9'0"	9'0"	9'0"	9'0"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓		✓
N.E. UNDERDRAIN	Weekly				7"			
N.M. UNDERDRAIN	Weekly				9"			
N.W. UNDERDRAIN	Weekly				3"			
S.E. UNDERDRAIN	Weekly				1"			
S.M. UNDERDRAIN	Weekly				6"			
S.W. UNDERDRAIN	Weekly				9"			
POND 4-DEPTH	Daily	5'6"	5'4"	5'4"	5'4"	5'4"	5'3"	5'3"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly	9"	9"	9"	6"	6"	7"	8"
N.M. UNDERDRAIN	Weekly				13			
N.W. UNDERDRAIN	Weekly	9"	10"	10"	6"	6"	7"	8"
S.E. UNDERDRAIN	Weekly				16"			
S.M. UNDERDRAIN	Weekly				9"			
S.W. UNDERDRAIN	Weekly				6"			
INSPECTED INLET PIPING	Weekly				✓			
PERIMETER FENCE	Weekly				✓			
INSPECTED LINERS	Weekly				✓			
INSPECTED DIVERSION DITCHES	Monthly							
INSPECTED WASTE PIPELINE	Monthly							
OTHER (EXPLAIN BELOW)								
INSPECTOR INITIAL HERE ▶		vm	vm	vm	[illegible]	[illegible]	[illegible]	vm

COMMENTS:

8-14-00 Use the ~~underdrain~~ Probes, for pond depth, from now on instead of the liner measurement. E.D.

8-14-00 14:45 S.W. underdrain P#1 pumped out
8-15-00 11:25 N.E. underdrain P#4 pumped out
8-15-00 13:40 N.W. underdrain P#4 pumped out

CROW BUTTE MINE

COMMERCIAL POND INSPECTION FORM

For The Week Of 8-20-00 through 8-26-00

CHECK ACCORDINGLY: √=OK X=NEEDS ATTENTION OR REPAIRS

LOCATION	FREQUENCY	SUN	MON	TUE	WED	THU	FRI	SAT
POND 1-DEPTH	Daily	8'4"	8'2"	8'2"	8'2"	8'2"	8'2"	8'3"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓		✓
N.E. UNDERDRAIN	Weekly				1"			
N.M. UNDERDRAIN	Weekly				1"			
N.W. UNDERDRAIN	Weekly				3"			
S.E. UNDERDRAIN	Weekly				1"			
S.M. UNDERDRAIN	Weekly				1"			
S.W. UNDERDRAIN	Weekly	3"	3" raised TO 9"	7" lowered TO 3"	3"	3"	4"	4"
POND 3-DEPTH	Daily	9'0"	8'9"	8'9	8'9"	8'9"	8'5"	8'6"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓		✓
N.E. UNDERDRAIN	Weekly				6"			
N.M. UNDERDRAIN	Weekly				9"			
N.W. UNDERDRAIN	Weekly				3"			
S.E. UNDERDRAIN	Weekly				1"			
S.M. UNDERDRAIN	Weekly				7"	7" down TO 0	5"	6"
S.W. UNDERDRAIN	Weekly				4"D			
POND 4-DEPTH	Daily	5'3"	5'3"	5'3"	5'3"	5'3"	5'4"	5'2"
EMBANKMENTS	Daily	✓	✓	✓				
N.E. UNDERDRAIN	Weekly	7"	7"	7"	7"	7"	9"	7"
N.M. UNDERDRAIN	Weekly				14"			
N.W. UNDERDRAIN	Weekly	7"	9"	9"	8"	8"	10"	8"
S.E. UNDERDRAIN	Weekly				16"			
S.M. UNDERDRAIN	Weekly				9"			
S.W. UNDERDRAIN	Weekly				6"			
INSPECTED INLET PIPING	Weekly							
PERIMETER FENCE	Weekly							
INSPECTED LINERS	Weekly							
INSPECTED DIVERSION DITCHES	Monthly							
INSPECTED WASTE PIPELINE	Monthly							
OTHER (EXPLAIN BELOW)								
INSPECTOR INITIAL HERE ▶		JE	RH	RH	RH	RH	MB	[illegible]

COMMENTS: 8/21/00 Added 6" fresh flush water to SW underdrain of Pond #1 per log book @ 1155 hrs. CRM
8/22 Started pumping SW underdrain of Pond #1 @ 1125 hrs per log book CRM.
8/02 stopped pumping SW underdrain at 1004 hrs.
8/23 1050 pumped underdrain pond 3 S.M. starting 7", pump off at 1300 Level at 0" approx. 145 Gal pumped out

8/25 Pumped out Pond #3 SM, Pond #4 NE, NW Pond #1 SW

CROW BUTTE MINE

COMMERCIAL POND INSPECTION FORM

For The Week Of 8-28-00 through 9-2-00

CHECK ACCORDINGLY: ✓=OK X=NEEDS ATTENTION OR REPAIRS

LOCATION	FREQUENCY	SUN	MON	TUE	WED	THU	FRI	SAT
POND 1-DEPTH	Daily	8'3'	8'3"	8'3"	8'2"	8'2	8'2"	8'2"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly				2"			
N.M. UNDERDRAIN	Weekly				2"			
N.W. UNDERDRAIN	Weekly				4"			
S.E. UNDERDRAIN	Weekly				0"			
S.M. UNDERDRAIN	Weekly				0"			
S.W. UNDERDRAIN	Weekly	3"	3"	3"	3"	6"	8"	5"
POND 3-DEPTH	Daily	8'6"	8'6"	8'6"	8'7"	8'5"	8'5"	8'5"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly				7"			
N.M. UNDERDRAIN	Weekly				9"			
N.W. UNDERDRAIN	Weekly				3"			
S.E. UNDERDRAIN	Weekly				1"			
S.M. UNDERDRAIN	Weekly	5"	5"	5"	5"	6"	7"	7"
S.W. UNDERDRAIN	Weekly				9"			
POND 4-DEPTH	Daily	5'1"	5'0"	5'	5'5"	5'	5'	5'
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly	7"	7"	7"	6"	8"	10"	10"
N.M. UNDERDRAIN	Weekly				15"			
N.W. UNDERDRAIN	Weekly	7"	7"	8"	9"	11"	10"	10"
S.E. UNDERDRAIN	Weekly				17"			
S.M. UNDERDRAIN	Weekly				9"			
S.W. UNDERDRAIN	Weekly				6"			
INSPECTED INLET PIPING	Weekly				✓			
PERIMETER FENCE	Weekly				✓			
INSPECTED LINERS	Weekly				✓			
INSPECTED DIVERSION DITCHES	Monthly				✓			
INSPECTED WASTE PIPELINE	Monthly				✓			
OTHER (EXPLAIN BELOW)								
INSPECTOR INITIAL HERE ▶		JE	JE	JH	MB	MB	MB	YC

COMMENTS: *Liner vent NE corner of Pond #1 needs repair.
*Pumped water into Pond #1 SW Underdrain & Pond #4 NE & NW Underdrains.
*Pumped water out of underdrains Friday. (#1 SW & #4 NE & NW)

CROW BUTTE MINE

COMMERCIAL POND INSPECTION FORM

For The Week Of 9-3-00 through 9-9-00

CHECK ACCORDINGLY: ✓=OK X=NEEDS ATTENTION OR REPAIRS

LOCATION	FREQUENCY	SUN	MON	TUE	WED	THU	FRI	SAT
POND 1-DEPTH	Daily	8'2"	8'2"	8'2"	8'2"	8'1"	8'1"	8'2"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly				1"			
N.M. UNDERDRAIN	Weekly				1"			
N.W. UNDERDRAIN	Weekly				3"			
S.E. UNDERDRAIN	Weekly				1"			
S.M. UNDERDRAIN	Weekly				0"			
S.W. UNDERDRAIN	Weekly	5"	5"	5"	4"	4"	4"	4"
POND 3-DEPTH	Daily	8'5"	8'5"	8'5"	8'6"	8'6"	8'6"	8'5"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly				5"			
N.M. UNDERDRAIN	Weekly				9"			
N.W. UNDERDRAIN	Weekly				3"			
S.E. UNDERDRAIN	Weekly				0"			
S.M. UNDERDRAIN	Weekly	7"	7"	7"	5"	5"	5"	5"
S.W. UNDERDRAIN	Weekly				10"			
POND 4-DEPTH	Daily	5'	5'	4'11"	4'11"	4'11"	4'11"	4'10"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly	10"	10"	11"	10"	10"	10"	9"
N.M. UNDERDRAIN	Weekly				14			
N.W. UNDERDRAIN	Weekly	10"	10"	11"	10"	10"	10"	9"
S.E. UNDERDRAIN	Weekly				16"			
S.M. UNDERDRAIN	Weekly				8"			
S.W. UNDERDRAIN	Weekly				5"			
INSPECTED INLET PIPING	Weekly				✓			
PERIMETER FENCE	Weekly				✓			
INSPECTED LINERS	Weekly				✓			
INSPECTED DIVERSION DITCHES	Monthly							
INSPECTED WASTE PIPELINE	Monthly							
OTHER (EXPLAIN BELOW)								
INSPECTOR INITIAL HERE ▶		TC	TC	MB	BL	BL	BL	AE

COMMENTS:

CROW BUTTE MINE

COMMERCIAL POND INSPECTION FORM

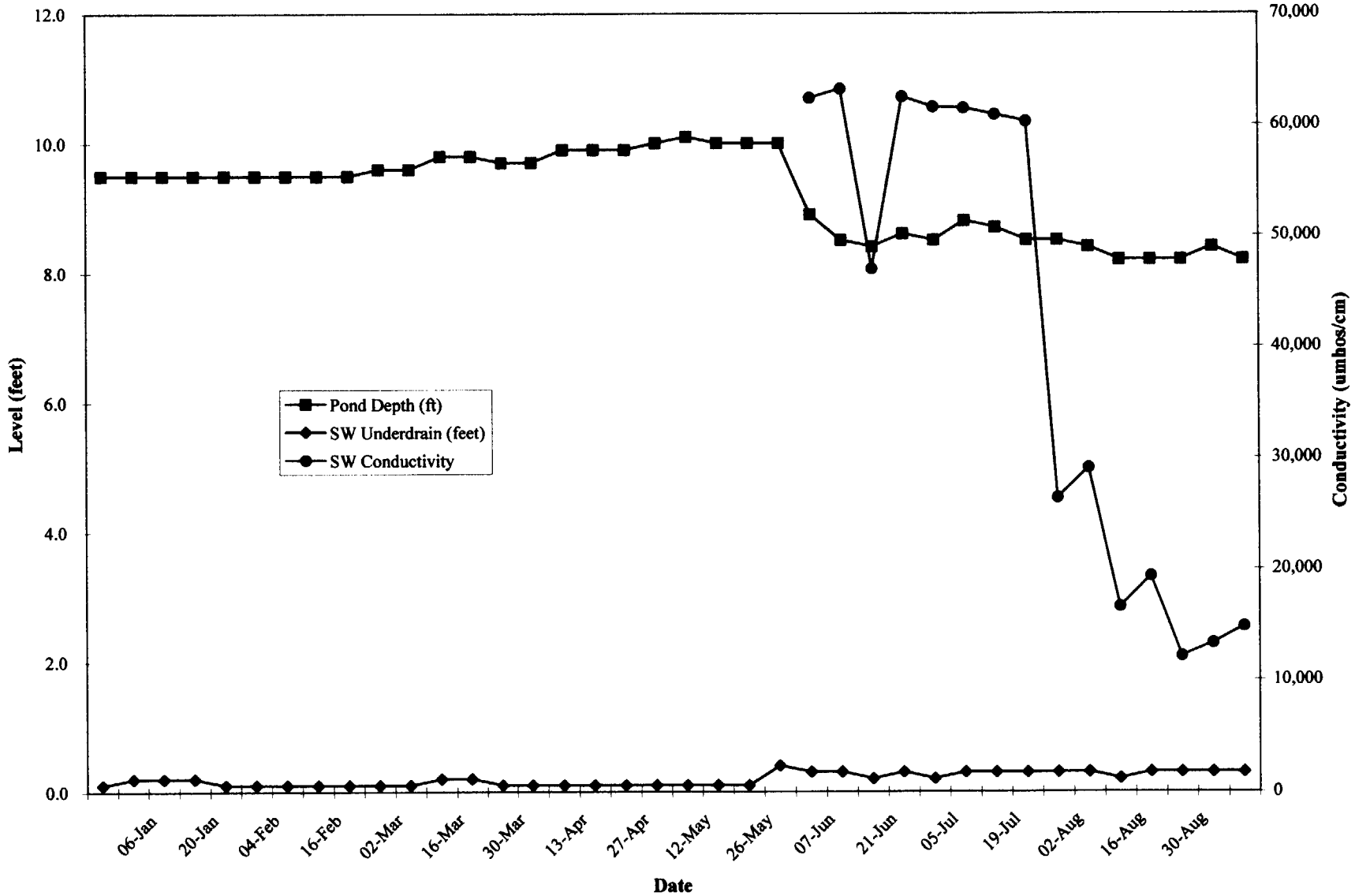
For The Week Of 10 Sept '00 through 16 Sept '00

CHECK ACCORDINGLY: ✓=OK X=NEEDS ATTENTION OR REPAIRS

LOCATION	FREQUENCY	SUN	MON	TUE	WED	THU	FRI	SAT
POND 1-DEPTH	Daily	8'2"	8'2"	8'2"	8'2"	8'2"	8'2"	8'1"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly				2"			
N.M. UNDERDRAIN	Weekly				2"			
N.W. UNDERDRAIN	Weekly				4"			
S.E. UNDERDRAIN	Weekly				1"			
S.M. UNDERDRAIN	Weekly				0"			
S.W. UNDERDRAIN	Weekly	5"	5"	5"	3"	3"	4"	5"
POND 3-DEPTH	Daily	8'5"	8'5"	8'3"	8'6"	8'2"	8'2"	8'9"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly				5"			
N.M. UNDERDRAIN	Weekly				9"			
N.W. UNDERDRAIN	Weekly				3"			
S.E. UNDERDRAIN	Weekly				1"			
S.M. UNDERDRAIN	Weekly	7"	7"	7"	5"	6"	6"	5"
S.W. UNDERDRAIN	Weekly				10"			
POND 4-DEPTH	Daily	4'9"	4'9"	4'10	5'	4'8"	4'8"	4'8"
EMBANKMENTS	Daily	✓	✓	✓	✓	✓	✓	✓
N.E. UNDERDRAIN	Weekly	12"	12"	12"	10"	6"	6"	6"
N.M. UNDERDRAIN	Weekly				14"			
N.W. UNDERDRAIN	Weekly	10"	10"	11"	9"	3"	3"	7'
S.E. UNDERDRAIN	Weekly				15"			
S.M. UNDERDRAIN	Weekly				9"			
S.W. UNDERDRAIN	Weekly				5"			
INSPECTED INLET PIPING	Weekly				✓			
PERIMETER FENCE	Weekly				✓			
INSPECTED LINERS	Weekly				✓			
INSPECTED DIVERSION DITCHES	Monthly							
INSPECTED WASTE PIPELINE	Monthly							
OTHER (EXPLAIN BELOW)								
INSPECTOR INITIAL HERE ▶		von	BL	von	MB	Mat	BL	JE

COMMENTS: Wednesday: Pumped out underdrains #1 SW, #3 SM / Thursday #4 NE, NW
Friday #4 - N.W. underdrain - erractic measurements due to pumping

Attachment 4

Pond 1 Southwest Underdrain
Monitoring Data Chart

Pond 1 Southwest Underdrain
Monitoring Data