LA-UR-11-10368
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Title:	Groundwater Discharge Plan Quarterly Report, First Quarter 2011, Sanitary Wastewater Systems Plant (DP-857)
Author(s):	Beers, Robert S.
Intended for:	NMED Report Environmental monitoring and surveillance Reading Room NMED

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Environmental Protection Division
Water Quality & RCRA Group (ENV-RCRA)
P.O. Box 1663, Mail Stop K490
Los Alamos, New Mexico 87545
(505) 667-7969/FAX: (505) 665-9344

Date: April 28, 2011
Refer To: ENV-RCRA-11-
LA-UR:

Mr. William C. Olson, Bureau Chief
Ground Water Quality Bureau
New Mexico Environment Department
Harold Runnels Building, Room N2261
1190 St. Francis Drive
P.O. Box 26110
Santa Fe, NM 87502

Dear Mr. Olson:

SUBJECT: GROUNDWATER DISCHARGE PLAN QUARTERLY REPORT, FIRST QUARTER 2011, SANITARY WASTEWATER SYSTEMS PLANT (DP-857)

This letter and attachments are Los Alamos National Laboratory's quarterly report for the TA-46 Sanitary Wastewater Systems (SWWS) Plant Groundwater Discharge Plan (DP-857) for the first quarter (January, February, and March) of 2011.

Table 1.0 presents water quality data from sampling conducted at the TA-46 SWWS Plant's reuse wet well, NPDES Outfalls 001 and 03A027, and Cañada del Buey Observation Well (CDBO)-6 for the first quarter of 2011. All sample results presented in Table 1.0 are less than the New Mexico Water Quality Control Commission Regulation 3103 standards for groundwater. Attachment 1.0 presents copies of the analytical reports prepared by General Engineering Laboratories, Inc.

Table 2.0 presents the water level in CDBO-6 for the first quarter of 2011.

Table 3.0 presents discharge volumes from the SWWS Plant's force main to TA-3, the Power Plant's NPDES Outfall 001, and the Strategic Computing Complex's (SCC) NPDES Outfall 03A027. In addition, Table 3.0 includes the volume of reuse water used by the SCC cooling towers; during the first quarter of 2011, the SCC cooling towers did not use any SWWS Plant reuse water or treated water from the Sanitary Effluent Reclamation Facility (SERF).

Table 4.0 and Attachment 2.0 present the results from monthly inspections of the four leak collection standpipes at the SERF evaporation basins located on Sigma Mesa. The leak collection standpipes were dry or contained de minimis amounts of water during January 13,

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2011, inspection. However, during the February 24, 2011, inspection, water was discovered in the west basin's east inspection pipe.

Water was discovered in the west basin's east inspection pipe at a depth of approximately 2 ft on February 24, 2011. The water level in the west SERF evaporation basin on February 24th was very low; roughly, only one-third (1/3) of the of the basin's floor was covered with water. No wastewater from the SERF or from any other Laboratory sources was discharge to either of the SERF basins in 2010. The only source of water to the SERF basins in 2010 was precipitation. Since the discovery, the following corrective actions have been taken:

1. On February 28, 2011, the west basin's east inspection pipe was pumped dry. The water removed, approximately XX gal was transferred to the east SERF basin.

2. The west basin's east inspection pipe was monitored daily for the next XX days. A minimal amount of water returned to the pipe; measurements taken with a rod showed <1-inch of standing water in the pipe. A measurement taken on April 8th shows the level unchanged.

3. On two occasions—March 10th and April 1st—air was injected into the west basin's inspection ports in an attempt to produce bubbles or air leaks in the liner; both attempts failed to identify any breaches in the primary liner.

Considering that action no. 3 above did not identify any breach in the liner, the Laboratory will implement the procedures for locating a liner leak provided by the Snow Co., the installer of the liner (see Attachment 3.0).

Please call me at (505) 667-7969 if you have questions regarding this report.

Sincerely,

Robert Beers
Water Quality & RCRA Group

BB/lm

Attachments: a/s

Cy: Glenn Saums, NMED/SWQB, Santa Fe, NM, w/att.
James Bearzi, NMED HWB, Santa Fe, NM, w/att.
Steve Yanicak, LASO-GOV, w/att., J993
Hai Shen, LASO-EO, w/att., A316
Gene Turner, LASO-EO, w/att., A316

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Michael B. Mallory, PADOPS, w/o att., A102
Chris Cantwell, ADESHQ, w/o att., K491
Mike Saladen, ENV-RCRA, w/o att., K490
Walter E. Atencio, ADESHQ, w/att., K760
Mell Smithour, SSS-UD-J01, w/att., K718
Charles Barnett, SSS-UD-M02, w/att., A199
ENV-DO, w/o att., J978
ENV-RCRA File, w/att., K490
IRM-RMMSO, w/att., A150

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Table 1.0 Water Quality Data: SWWS Plant Reuse Water, NPDES Outfalls 001 and 03A027, and CDBO-6. 1st Quarter, 2011.

Sampling Location	Field Prep[2]	Sample Date	Sample ID No.	TDS (mg/L)	Chloride (mg/L)	NO3+NO2-N (mg/L)	TKN (mg/L)	NH3-N (mg/L)
SWWS Plant								
SWWS Plant Reuse Wet Well[1]	UF	02/22/11	SWWS46-11-4854	521	152	0.19J	0.74	0.20
Sandia Canyon								
NPDES Outfall 001	UF	02/22/11	SWWS46-11-4852	505	121	0.47J	0.69	0.07
NPDES Outfall 03A027	UF	02/22/11	SWWS46-11-4853	397	14.3	0.86	0.68	0.05
Canada del Buey								
CDBO-6	F	02/24/11	CAPA-11-2952	176	22.7	<0.25		<0.50
CDBO-6	UF	02/24/11	CAPA-11-2951				<0.10	
NM WQCC Regulation 3103 Ground Water Standards (mg/L)				*1000*	*250*	*10*[3]	*NA*	*NA*

Notes:

[1]Water in the reuse wet well is representative of water in the reuse pond.

[2]UF means a non-filtered sample, F means a filtered sample.

[3]The NMWQCC Regulation 3103 Ground Water Standard is for NO_3-N.

[4]Dry means that there was insufficient water in the well for sampling.

J means the reported result was greater than the Method Detection Limit but less than the Reporting Limit.

J- means that the reported value is expected to be more uncertain than usual with a potential negative bias.

J+ means that the reported value is expected to be more uncertain than usual with a potential positive bias.

NA means that there is no NM WQCC Regulation 3103 ground water standard for this analyte.

Table 2.0. Water Level in Cañada del Buey Observation Well (CDBO)-6, 1st Quarter 2011

Location	Date	Water Level† (ft)
CDBO-6	1/24/11	38.80

Notes:
† Measured in feet from the top of the well casing to the surface of the water.

Table 3.0. Discharge Volumes from the SWWS Plant and NPDES Outfall 001, and SWWS Plant Reuse Water to SCC Cooling Towers, 1st Quarter 2011 (in millions of gallons).

Month	SWWS Plant Effluent to TA-3[1]	Discharges to NPDES Outfall 001[2]	Reuse Water to SCC Cooling Towers[3] (estimated)	Discharges to NPDES Outfall 03A027[4]
Jan-2011			0	
Feb-2011			0	
Mar-2011			0	

Notes:
[1]In the 1st quarter of 2011, all SWWS Plant effluent was pumped via a force main to TA-3 for reuse or discharge.
[2]Power plant wastewater and all SWWS Plant reuse water not used by the SCC Cooling Towers are discharged at NPDES Outfall 001.
[3]The SCC cooling towers can use potable or SWWS Plant reuse water. Table 3.0 contains the estimated volume of SWWS Plant reuse water that the SCC cooling towers used during the 1st quarter of 2011.
[4]The SCC cooling towers discharge to NPDES Outfall 03A027 at Sandia Canyon.
NA means that no flow volumes were available at the time this report was prepared.

Table 4.0. Inspection Results, SERF Evaporation Basins, Leak Collection Standpipes.

Inspection Date	Inspection Results
1/13/2011	All standpipes are dry or contain minimal amounts of water
2/24/2011	The west basin's east inspection pipe contains water. See report for details.
3/17/2011	The west basin's east inspection pipe contains less than 1" of water.

Analytical Reports

by

General Engineering Laboratories, Inc

Sample Dates:
2/22/2011
2/24/2011

Locations:
SWWS Plant Reuse Wet Well
NPDES Outfall 001
NPDES Outfall 03A027
CDBO-6

Analytes
Cl, NO_3+NO_2, TDS, TKN, NH_3

SWWS PLANT REUSE WELL

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company :	Los Alamos National Laboratory	Report Date: March 2, 2011	
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545	Client SDG:	11-1425
Contact:	Ms. Joylene Valdez		
Project:	LANL WQH WQCC Regs		

Client Sample ID:	SWWS46-11-4854	Project:	ESHL00110
Sample ID:	272800003	Client ID:	ARSL001
Matrix:	Waste Water		
Collect Date:	22-FEB-11 12:00		
Receive Date:	24-FEB-11		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Ion Chromatography										
EPA 300.0 Chloride in Liquid "As Received"										
Chloride		152	0.660	2.00	mg/L	10	GXM3 02/26/11	1331	1077676	1
Nutrient Analysis										
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"										
Nitrogen, Nitrate/Nitrite	J	0.186	0.100	0.500	mg/L	10	KLP1 03/02/11	0911	1077562	2
Nitrogen as Ammonia "As Received"										
Nitrogen, Ammonia		0.200	0.016	0.050	mg/L	1	KLP1 03/01/11	1203	1078139	3
Nitrogen, Total Kjeldahl (TKN) "As Received"										
Nitrogen, Total Kjeldahl		0.739	0.033	0.100	mg/L	1	KLP1 03/01/11	1523	1078131	4
Solids Analysis										
EPA 160.1 Solids, Dissolved-F "As Received"										
Total Dissolved Solids		521	2.38	10.0	mg/L		LYG1 02/25/11	1105	1078087	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXS5	02/28/11	1605	1078138
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXS5	02/28/11	1606	1078129

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 353.2	
3	EPA 350.1	
4	EPA 351.2	
5	EPA 160.1	

NPDES OUTFALL 001

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company :	Los Alamos National Laboratory	Report Date:	March 2, 2011
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545	Client SDG:	11-1425
Contact:	Ms. Joylene Valdez		
Project:	LANL WQH WQCC Regs		

Client Sample ID:	SWWS46-11-4852	Project:	ESHL00110
Sample ID:	272800001	Client ID:	ARSL001
Matrix:	Waste Water		
Collect Date:	22-FEB-11 12:00		
Receive Date:	24-FEB-11		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA 300.0 Chloride in Liquid "As Received"											
Chloride		121	0.660	2.00	mg/L	10	GXM3	02/26/11	1205	1077676	1
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite	J	0.471	0.100	0.500	mg/L	10	KLP1	03/02/11	0906	1077562	2
Nitrogen as Ammonia "As Received"											
Nitrogen, Ammonia		0.069	0.016	0.050	mg/L	1	KLP1	03/01/11	1159	1078139	3
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl		0.688	0.033	0.100	mg/L	1	KLP1	03/01/11	1518	1078131	4
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		505	2.38	10.0	mg/L		LYG1	02/25/11	1105	1078087	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXS5	02/28/11	1605	1078138
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXS5	02/28/11	1606	1078129

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 353.2	
3	EPA 350.1	
4	EPA 351.2	
5	EPA 160.1	

NPDES OUTFALL 03A027

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company :	Los Alamos National Laboratory	Report Date:	March 2, 2011
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545	Client SDG:	11-1425
Contact:	Ms. Joylene Valdez		
Project:	LANL WQH WQCC Regs		

Client Sample ID:	SWWS46-11-4853	Project:	ESHL00110
Sample ID:	272800002	Client ID:	ARSL001
Matrix:	Waste Water		
Collect Date:	22-FEB-11 12:00		
Receive Date:	24-FEB-11		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA 300.0 Chloride in Liquid "As Received"											
Chloride		14.3	0.066	0.200	mg/L	1	GXM3	02/25/11	1950	1077676	1
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.855	0.100	0.500	mg/L	10	KLP1	03/02/11	0910	1077562	2
Nitrogen as Ammonia "As Received"											
Nitrogen, Ammonia		0.052	0.016	0.050	mg/L	1	KLP1	03/01/11	1202	1078139	3
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl		0.683	0.033	0.100	mg/L	1	KLP1	03/01/11	1522	1078131	4
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		397	2.38	10.0	mg/L		LYG1	02/25/11	1105	1078087	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXS5	02/28/11	1605	1078138
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXS5	02/28/11	1606	1078129

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 353.2	
3	EPA 350.1	
4	EPA 351.2	
5	EPA 160.1	

CDBO-6

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company :	Los Alamos National Laboratory	Report Date:	February 18, 2011
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545	Client SDG:	11-1184
Contact:	Ms. Joylene Valdez		
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAPA-11-2952	Project:	ESHL00210
Sample ID:	270959002	Client ID:	ARSL001
Matrix:	WG		
Collect Date:	24-JAN-11 12:00		
Receive Date:	25-JAN-11		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		221	1.00	1.00	umhos/cm	1	TXT1	02/07/11	1147	1072133	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 16.6C	H	6.42	0.010	0.100	SU	1	LXA1	01/31/11	1725	1069721	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.066	0.200	mg/L	1	VH1	01/27/11	0132	1067782	3
Fluoride		0.178	0.033	0.100	mg/L	1					
Sulfate		9.69	0.100	0.400	mg/L	1					
Chloride		22.7	0.330	1.00	mg/L	5	VH1	01/31/11	1733	1067782	4
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	U	ND	0.016	0.050	mg/L	1	AXH3	01/27/11	1305	1067942	5
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite	U	ND	0.050	0.250	mg/L	5	AXH3	01/26/11	0846	1067948	6
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		0.188	0.015	0.050	mg/L	1	AXH3	01/26/11	1314	1067940	7
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		176	2.38	10.0	mg/L		LYG1	01/27/11	1102	1068843	8
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		58.0	0.725	1.00	mg/L		LXA1	02/07/11	1034	1071713	9
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXS5	01/26/11	1311	1067941
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	AXH3	01/26/11	0802	1067939

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 120.1	

CDBO-6

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company :	Los Alamos National Laboratory	Report Date:	February 18, 2011
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545	Client SDG:	11-1184
Contact:	Ms. Joylene Valdez		
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAPA-11-2951	Project:	ESHL00210
Sample ID:	270959001	Client ID:	ARSL001
Matrix:	WG		
Collect Date:	24-JAN-11 12:00		
Receive Date:	25-JAN-11		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average		1.82	0.330	1.00	mg/L	1	TSM	01/26/11	2027	1067711	1
Flow Injection Analysis											
WSP-CN(T) "As Received"											
Cyanide, Total	U	ND	1.70	5.00	ug/L	1	SDS	01/27/11	0837	1068257	2
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.033	0.100	mg/L	1	AXH3	01/26/11	1431	1067938	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXS5	01/26/11	1536	1068256
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXH3	01/26/11	0759	1067937

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 335.4	
3	EPA 351.2	

Photographs

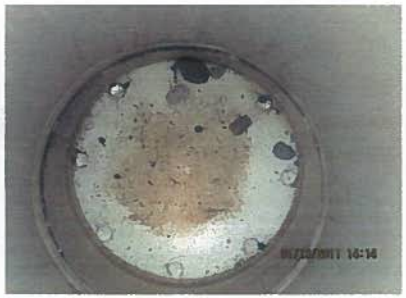
SERF Evaporation Basins and Leak Inspection Pipes

Inspection Dates:
1/13/2011
2/24/2011
3/17/2011

West basin, West inspection Pipe. (1-13-2011)

West basin, East inspection Pipe. (1-13-2011)

East basin, West inspection Pipe. (1-13-2011)



East basin, East inspection Pipe. (1-13-2011)

East basin influent pipe (1-13-2011)

East basin overflow pipe. (1-13-2011)

West basin overflow pipe (1-13-2011)

West basin influent pipe. (1-13-2011)

EVAPORATION POND INSPECTION RECORD
JANUARY 13, 2011

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West basin, west inspection Pipe. (2/24/2011)

West basin, East inspection Pipe. (2/24/2011)

East basin, West inspection Pipe. (2/24/2011)

East basin, East inspection Pipe. (2/24/2011)

East basin influent pipe. (2/24/2011)

East basin overflow pipe. (2/24/2011)

West basin overflow pipe. (2/24/2011)

West basin influent pipe. (2/24/2011)

EVAPORATION POND INSPECTION RECORD
FEBRUARY 24, 2011

DRAFT

West basin, west inspection Pipe. (3/17/2011)

West basin, east inspection Pipe (3/17/2011)

East basin, west inspection Pipe (3/17/2011)

East basin, east inspection Pipe. (3/17/2011)

East basin influent pipe. (3/17/2011)

East basin overflow pipe. (3/17/2011)

West basin overflow pipe. (3/17/2011)

West basin influent pipe. (3/17/2011)

EVAPORATION POND INSPECTION RECORD
MARCH 17, 2011

DRAFT

Procedures

Snow Company Procedures for Finding and Correcting Liner Leaks at the SERF Evaporation Basins

From: "Snow Company" <snowco@comcast.net>
To: "Steve Hanson" <hanson@lanl.gov>
Subject: Fw: LANL Pond Procedures
Date: Fri, 7 May 2004 08:18:34 -0600
X-Mailer: Microsoft Outlook Express 6.00.2800.1409
X-Perlmx-Spam: Gauge=XXXIIIII, Probability=35%, Report="BIG_FONT, HTML_70_90, LINES_OF_YELLING, LINES_OF_YELLING_2, LINES_OF_YELLING_3, MAILTO_LINK, OUTLOOK_FW_MSG, SPAM_PHRASE_00_01, SUPERLONG_LINE, USER_AGENT_OE, __EVITE_CTYPE, __HAS_MIMEOLE, __HAS_MSMAIL_PRI, __HAS_OUTLOOK_IN_MAILER, __HAS_X_MAILER, __HAS_X_PRIORITY"
X-Scanned-By: MIMEDefang 2.35

----- Original Message -----
From: Snow Company
To: Tom Hunt
Sent: Wednesday, April 14, 2004 11:58 AM
Subject: LANL Pond Procedures

RECOMMENDED INSPECTION PROGRAM
LANL DOUBLE LINED POND

I have received a copy of the e-mail that Steve Hanson sent you on 4/12/2004. I feel that we should establish some procedures for this testing these ponds in order to maximize the possibility of finding and correcting the source of the leak.

POND CONSTRUCTION

1. Establish definitively whether the East and West inspection wells are divided (either by the slope of the pond or leakage detection trench or by separate piping). If they are not divided, then there may not be any correlation between which detection well the leakage appears in and the origination point of the leak.
2. Establish the elevation relationship between the bottom of the inspection wells and the bottom of the pond.

INPSECTION PROCEDURES -- The purpose of these procedures is to establish the approximate elevation of the leak, whether the leak corresponds to any features in the pond (ie, pipe boots), and establish the rate of leakage and whether that rate varies with the liquid depth in the pond. It is critical that these procedures be documented; while the photos that Steve has sent us have been useful, we now need actual measurements and documentation of inspections and results.

The list of procedures shown below assumes that we will inspect the East pond first.

1. Lower the water level in the East pond to a depth of 6".
2. Pump out both inspection wells in the East pond until the wells remain dry. If the wells do not dry up, advise this office.
3. After the wells are dry, allow the system to stabilize for at least 72 hours to ensure that no additional liquid appears in the inspection wells. If the wells remain dry, this will become the beginning time of the test. Record the date, time, the depth of the water in the pond, and the amount of time that the inspection wells have been dry.
4. Raise the water level in the pond by 12", but ensure that the water level is at least 6" below the bottom of the inlet pipe.
5. Allow the system to stabilize for at least 72 hours to ensure that no liquid appears in the inspection wells. During this time, inspect the wells at 24 hour intervals. Record the results of these

inspections.

6. If liquid appears in the detection wells during this period, record the depth of the liquid in the well. Pump out the liquid 48 hours after the liquid appears, and record the amount pumped. Advise this office of the results.
7. If the wells remain dry, raise the water level in the pond an additional 12", but ensure that the water level is still at least 6" below the bottom of the inlet pipe. Repeat procedures 5 & 6 above.
8. Once the water level in the pond has been raised to a level 6" below the bottom of the inlet pipe, and the
wells have remained dry for 72 hours, raise the water level in the pond 6" above the top of the inlet pipe, and repeat procedures 5 & 6 above. If no leakage has appeared at this point, contact this office.

As we have discussed, the source of the leaks appears to be very small, and our only chance of locating it is to
minimize the potential areas where it may be located.

Let me know if I can answer any questions.