POLLUTION ABATEMENT SERVICES
IMPROVEMENT SUGGESTED FOR IMMEDIATE CONSTRUCTION
(CONTRACT DOCUMENTS TO BE PREPARED
BY URS CONSULTANT UNDER TASK-5
OF O&M CONTRACT)

Note: Meeting with TI-AL & Team 6/26/91 All agreed except item B(1). Also wait until EPA decide on treatment plant. AL.

(A) LEACHATE COLLECTION TANK:

1. Piping modifications to replace existing ball valve and prevent back flow to wells.

2. Seal hairline cracks and provide suitable seal coat on inside of tank.

3. Insulate roof - add couple vents.

4. Rebuild end walls (top of concrete tank and below roof) and install double pane glass doors.

5. Insulate around tank up to top of HDPE liner.

6. Install explosion proof lighting inside tank.

7. Install flood light outside tank.

8. Install level control instrumentation with heat tracer to eliminate freezing and connect system to automatic dialer.

9. Install independent pumping system in leachate collection tank with metering arrangement and easy non-drip tanker hook-up for easy loading of leachate.

10.* Install leak proof liner inside tank.

11.* Provide additional heat with thermostat control to eliminate freezing.

(B) DECON PAD & ACCESS ROAD MODIFICATIONS:

1. Construct 50' x 20' contained decon and leachate loading platform as shown on attached drawing. NO by AL

2. Modify access road and parking area as shown.

(C) ELECTRICAL SYSTEM:

1. Electrical line from main control panel to leachate tank for pump installation.

2. Strip pad heater's inside all control panels and automatic dialer.

*NOTE: Need to be evaluated the need

a:improve.pas:AKG:et

FUTURE TREATMENT FACILITY (NOT IN THIS CONTRACT)

EXISTING LEACHATE COLLECTION TANK

STA. 6+50

P.C. ℄ STA. 3+01

P.T. ℄ STA 3+2

℄ CURVE DATA
Δ = 45°
R = 30'
T = 12.43'
E = 2.47'
D = 190°-59'09"
L = 23.56'

P.C. ℄ STA. 3+50.12

Δ=90°
R=60'

Δ=45°
R=120'

P.C. ℄ STA 2+18

288

290

292

60

105

82.5'

56' PARALLEL

15'

6/7

SOURCE OF THIS DRAWING
RECORD DRAWINGS
3/10/1988

STA 4+20

R=20'

R=20'

286

286

10'

SENECA

280.2

PT. A

AK

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Thomas C. Jorling
Commissioner

Mr. Richard Ramon, P.E.
Emergency and Remedial Response Division
U.S.Environmental Protection Agency
Region II
26 Federal Plaza - Room 29-100
New York, NY 10278

JUN 21 1991

RE: Pollution Abatement Services (PAS)
Oswego County, Site #7-38-001

Dear Mr. Ramon:

Enclosed for your information is a copy of the Final Report for Leachate Collection System and Cap Evaluation, as it relates to the Long-term Operation and Maintenance of the PAS site. This report was prepared by the URS Consultants, Inc. (NYSDEC Consultant) as part of their O&M task assignment.

If you have any questions, please call me at 518/457-0927.

Sincerely,

A. K. Gupta, P.E.
Environmental Engineer 2
Operation & Maintenance Section
Bureau of Construction Services
Division of Hazardous Waste Remediation

Enclosure

bcc: G. Rider
R. Lupe

a:ramon.pas:AKG:et

URS

URS CONSULTANTS INC

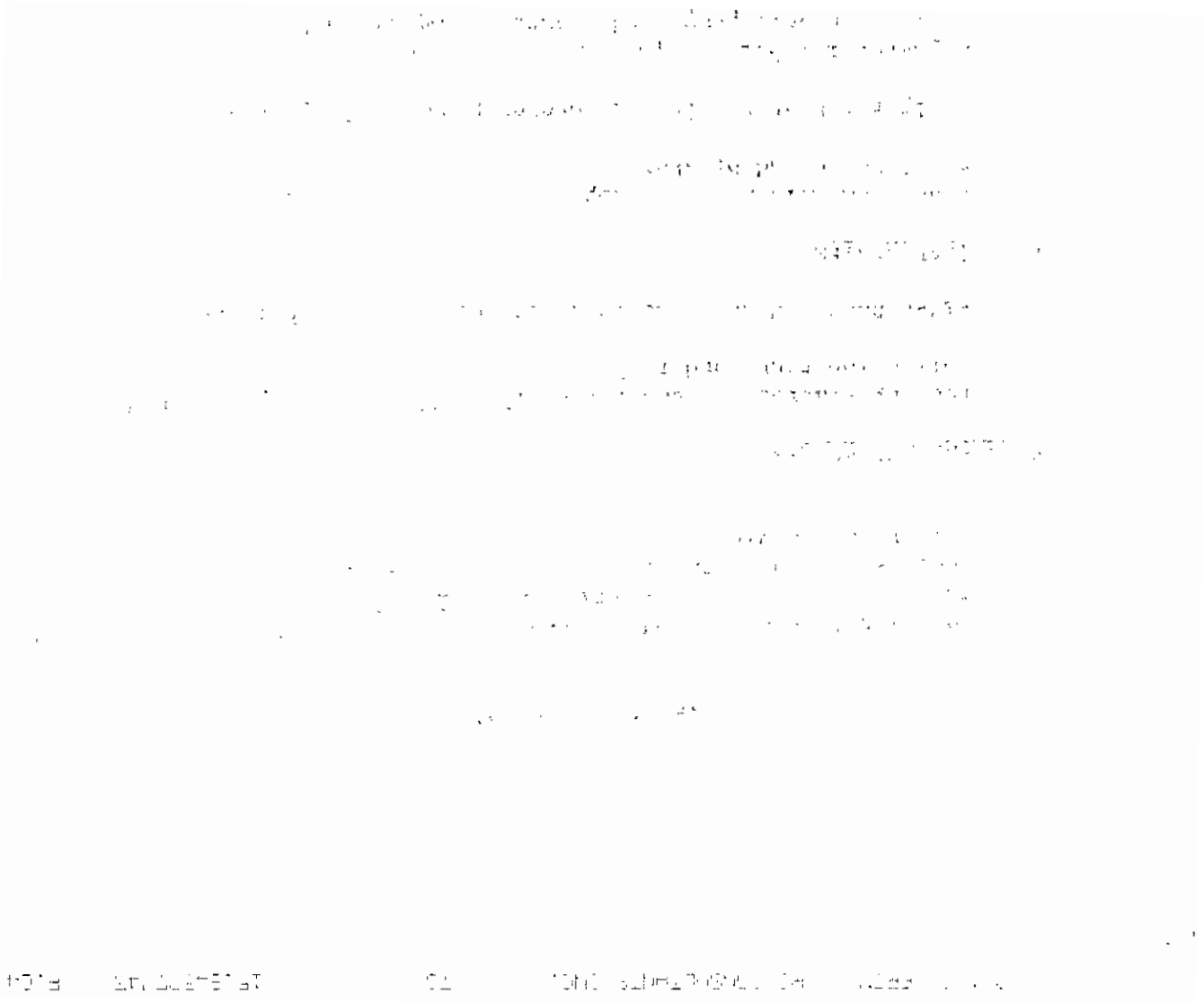


TABLE 1

[illegible]

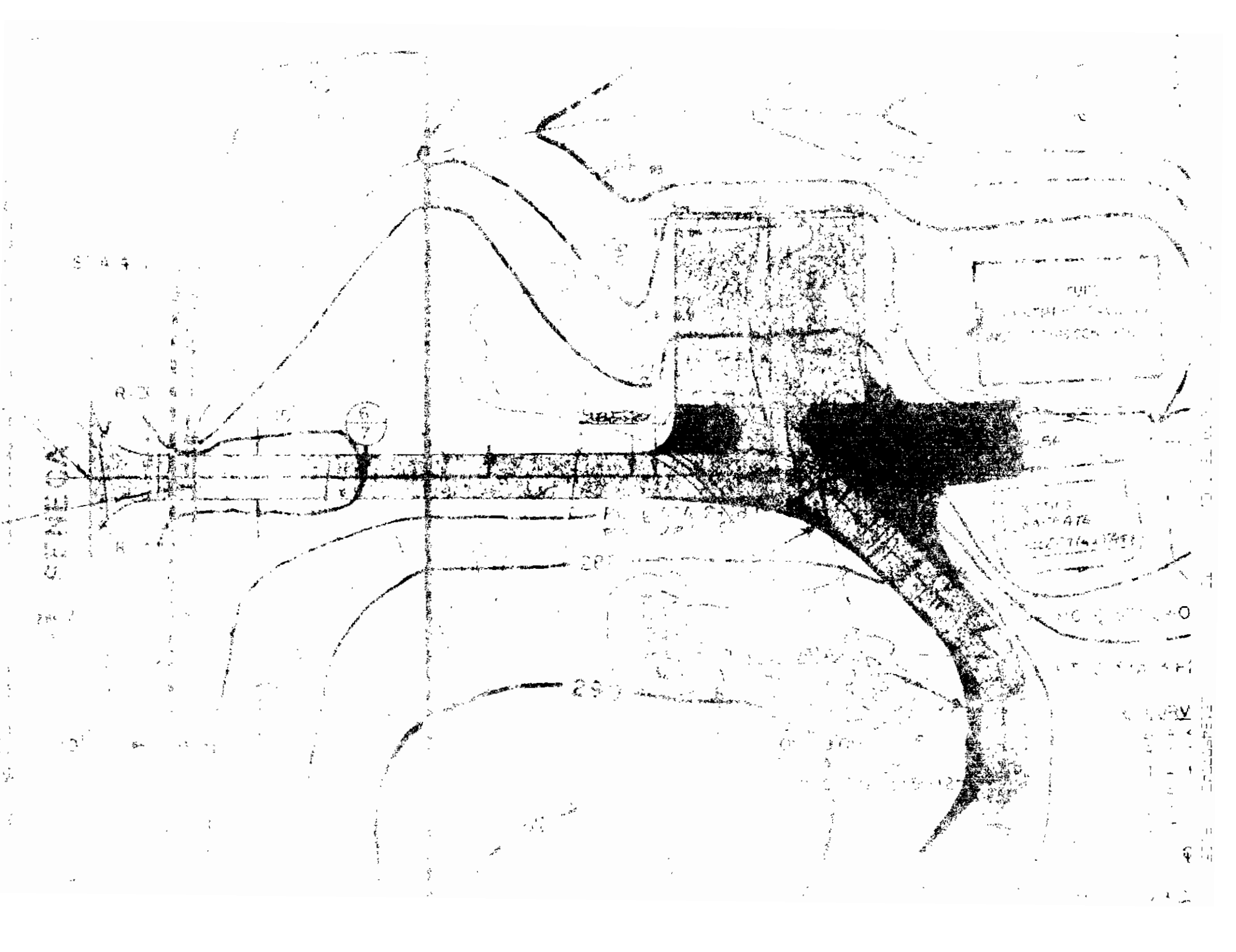
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

[illegible]

[illegible]	[illegible]
[illegible]	[illegible]

[illegible]

[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]



URS

URS CONSULTANTS, INC.
282 DELAWARE AVENUE
BUFFALO, NEW YORK 14202-1805
(716) 856-5636
FAX (716) 856-2545

[illegible] 1991

[illegible] Gupta, P.E., Project Manager
[illegible] Construction Services
[illegible] of Hazardous Waste Remediation
NY Department of Environmental Conservation
[illegible] Road
Albany, New York 12233-7010

RE: [illegible] SITE [illegible] SITE NO. [illegible]-001 (W.A. [illegible])

Dear Mr. Gupta:

[illegible] last week, we have developed preliminary [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] provided to the [illegible]

If you have any questions, please do not hesitate to call me.

Very truly yours,

URS CONSULTANTS, INC.

[illegible]
[illegible]

[illegible]

cc: [illegible] - NYSDEC
[illegible] - URS
[illegible] Hoffman - URS
[illegible] - URS
[illegible] 35236 [illegible]

Post-it™ brand fax transmittal memo
To: A.K. Gupta
Co: NYSDEC
Dept: DHWR - [illegible]
Fax #: 518-452-7[illegible]
From: [illegible]
Co: URS
Phone #: [illegible]
Fax #: [illegible]

TABLE 1

[illegible] GAS SLOP O&M
[illegible] PRELIMINARY COST ESTIMATES

USA HAZE COLLECTION TANK

1	[illegible]	$ 1 [illegible]
[illegible]	[illegible]	$ [illegible]
[illegible]	[illegible]	$10 [illegible]
[illegible]	[illegible]	$ [illegible]
[illegible]	[illegible]	$ [illegible]
[illegible]	[illegible]	$ [illegible]
[illegible]	[illegible]	$ [illegible]
[illegible]	[illegible]	$ [illegible]
[illegible]	[illegible]	$ [illegible]
[illegible]	[illegible]	$ [illegible]

[illegible] [illegible] [illegible] MODIFICATIONS

[illegible]	[illegible]	$ 4,0[illegible]
[illegible]	[illegible]	$ [illegible]

ELECTRICAL SYSTEM

1	[illegible]	$ [illegible]
[illegible]	[illegible]	$ [illegible]
[illegible]	[illegible]	[illegible]

TOTAL $[illegible]

[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

TABLE 2

[illegible] SITE O&M
IMPROVEMENTS [illegible] FOR IMMEDIATE [illegible]
BASIS FOR COST ESTIMATES

[illegible] HOLDING [illegible] TANK

1. Piping Modifications [illegible]

Seal Waterline Cracks [illegible] cracks [illegible] to seal [illegible] walls.

[illegible] Insulate Roof [illegible] install edge and end cap [illegible] ridge [illegible] may have to be removed for work inside tank).

[illegible] Rebuild end walls [illegible] easier equipment access and egress from tank).

[illegible] Install [illegible] wall to [illegible] Lower Wall [illegible] of [illegible] HDPE liner and install [illegible] water tight.

Light Inside Tank. Add [illegible] each 175 watt [illegible] conduit and wiring.

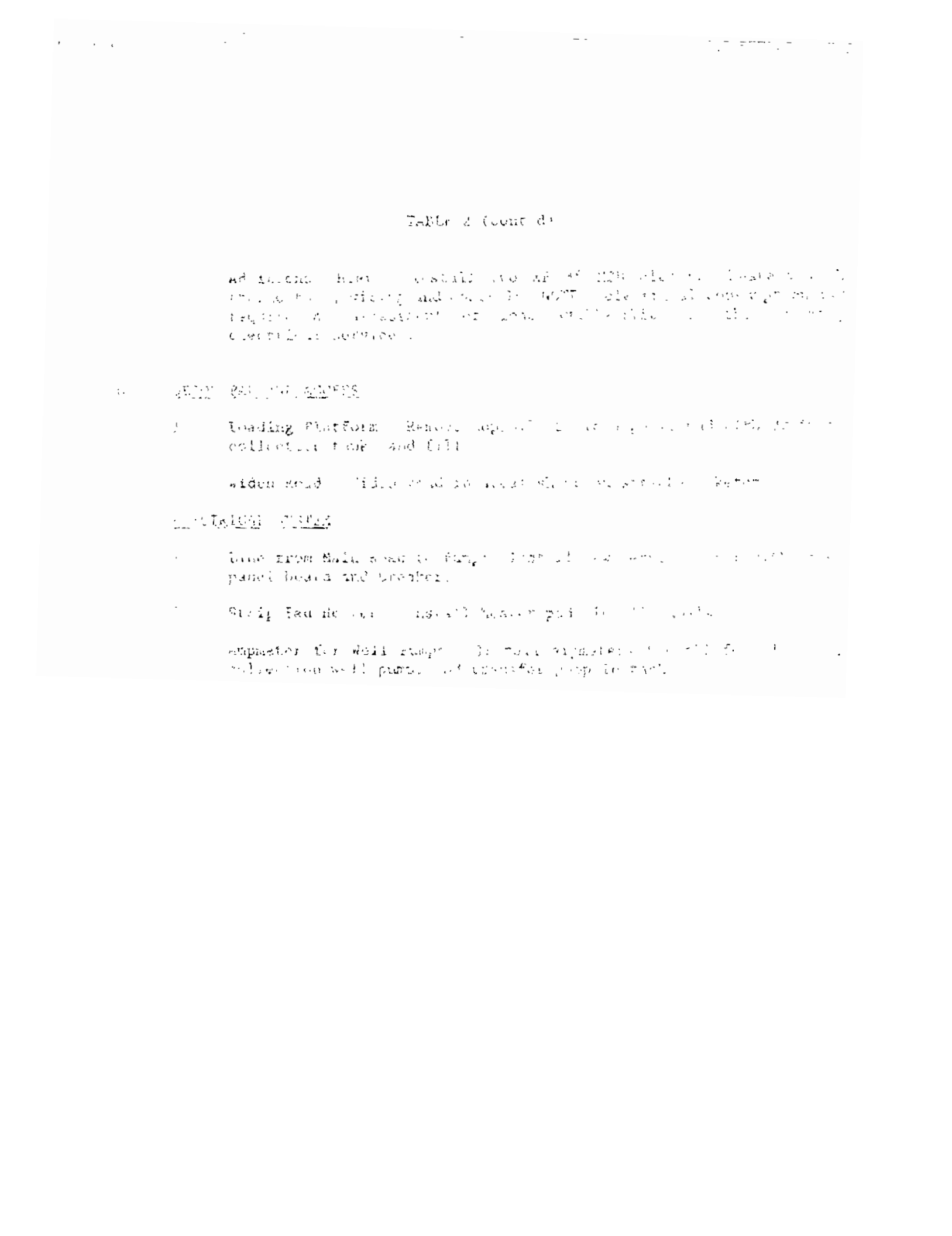
[illegible] Outside Flood Light [illegible] add [illegible] each [illegible] with conduit and wiring.

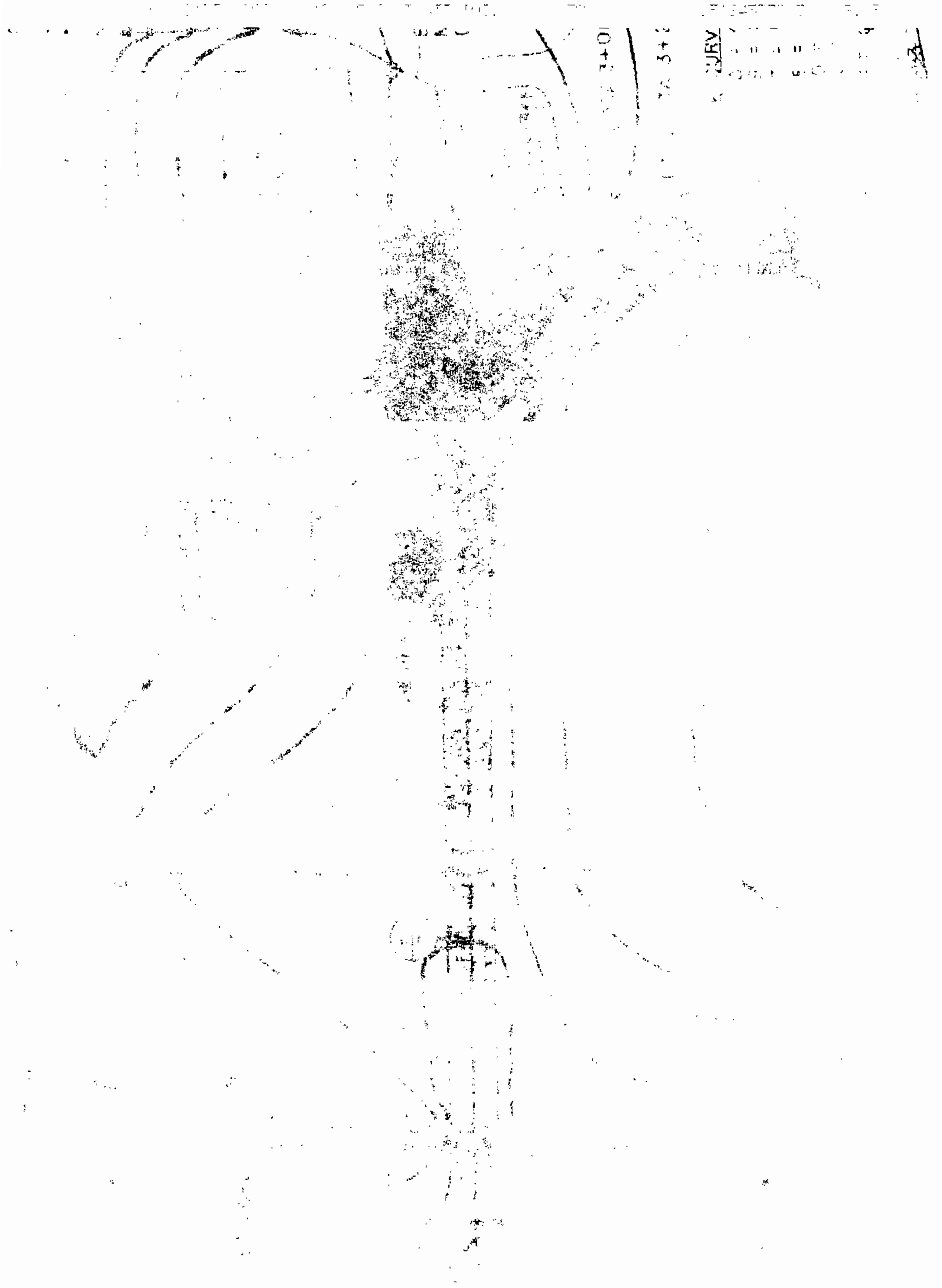
[illegible] Level Control Instrumentation [illegible] (heat tracing not required [illegible]).

[illegible] Install Leachate Pumping System in Tank [illegible] pump and [illegible] discharge piping [illegible]

[illegible] HDPE Liner Inside Tank [illegible] HDPE liner inside tank.

TABLE 2 (cont'd)





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AN INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATION

URS CONSULTANTS, INC.
282 DELAWARE AVENUE
BUFFALO, NEW YORK 14202-1805
(716) 856-5636
FAX: (716) 856-2545

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COLUMBUS
DENVER
NEW YORK
PARAMUS, NJ
NEW ORLEANS
SAN FRANCISCO
SAN MATEO
SEATTLE
VIRGINIA BEACH
WASHINGTON, D.C.

Discussed with Terry
Held for PRP response
All 7/10/91

July 10, 1991

Mr. A.K. Gupta, P.E., Project Manager
Bureau of Construction Services
Division of Hazardous Waste Remediation
NYS Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-7010

RE: PAS SITE O&M SITE NO. 7-38-001 (W.A. D002340-8)

Dear Mr. Gupta:

As per your request last week, we have developed preliminary construction cost estimates for individual items in your fax transmittal of June 26, 1991 related to immediate improvements at the PAS site. The estimated costs of individual items and basis for the costs are provided in the attached tables.

If you have any questions, please do not hesitate to call me.

Very truly yours,

URS CONSULTANTS, INC.

Dharmarajan Iyer

Dharmarajan R. Iyer, Ph.D.
Task Manager

DI/dm
35236B/7-3-91L
Enc.
cc: P. David Smith - NYSDEC
J. Gorton - URS
R. Hoffman, URS
J. Lysiak, URS
File 35236.00 (005)

Construction cost estimate for the suggested improvements at the PAS site. The estimate seems to be OK and we should go for it. Thanks!
P.S. What about Section 5d? I think this is needed. AK. 7/10

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 5

To A.K. Gupta	From Dharma Iyer
Co. NYSDEC	Co. URS
Dept. DHWR - O&M Sec.	Phone # 716-856 5636
Fax # 518-457-7743	Fax # 716-856 2545

TABLE 1

PAS SITE O&M
IMPROVEMENT SUGGESTED FOR IMMEDIATE CONSTRUCTION
PRELIMINARY COST ESTIMATES

A.	LEACHATE COLLECTION TANK	
1.	Piping Modifications	$ 1,500
2.	Seal Hairline Cracks	$15,000
3.	Insulate Roof	$10,000
4.	Rebuild End Walls	$ 3,000
5.	Insulate Outside Wall to HDPE Liner	$ 3,000
6.	Light Inside Tank	$ 5,500
7.	Outside Floor Light	$ 1,000
8.	Level Control Instrumentation	$ 2,000
9.	Leachate Pumping system in Tank	$12,000
10.	HDPE Liner Inside Tank	$15,000
11.	Additional Heat	$10,000
B.	DECON PAD AND ACCESS LOAD MODIFICATIONS	
1.	Loading Platform	$ 4,000
2.	Widen Road	$ 2,000
C.	ELECTRICAL SYSTEM	
1.	Line from Main Parcel to Pump	$ 1,500
2.	Strip Pad Heater	$ 500
2.	APM meters for Well Pumps	$ 1,500
	TOTAL	$87,500

NOTE: Costs for work inside tank are based on Level 'C' Protection.

TABLE 2

PAS SITE O&M
IMPROVEMENTS SUGGESTED FOR IMMEDIATE CONSTRUCTION
BASIS FOR COST ESTIMATES

A. LEACHATE COLLECTION TANK

1. **Piping Modifications:** Modify piping with air-relief.

2. **Seal Hairline Cracks:** Drain and clean tank, clean cracks, pressure inject epoxy to seal all cracks, apply epoxy coating to interior walls.

3. **Insulate Roof:** Apply R5.7 fiberglass insulation over existing roof; install edge and end cap flashing, and single ply membrane roofing. Add ridge-vent and eve vents. (NOTE: existing metal deck roofing may have to be removed for work inside tank).

4. **Rebuild End Walls:** Remove existing endwalls and replace with new weather tight insulated walls (preserved wood sheeting, insulation and wood shake shingles). Add new steel doorways with wire glass viewpanes. (NOTE: larger size (or height) door may be needed for easier equipment access and egress from tank).

5. **Insulate Outside Wall to HDPE Liner Wall:** Excavate around perimeter of tank to HDPE liner and install 2" styrofoam insulation from liner to top of wall, add flashing over insulation and top of wall to make water tight.

6. **Light Inside Tank:** Add 4 each 175 watt XP mercury vapor lights with conduit and wiring.

7. **Outside Flood Light:** Add 2 each 250 watt mercury vapor lights (photo cell) with conduit and wiring.

8. **Level Control Instrumentation:** Install two (2) ultrasonic non-contact transceivers (multiple set points) with conduits and wiring (heat tracing not required; 2nd unit is for back-up).

9. **Install Leachate Pumping System in Tank:** Install leachate transfer pump and exterior discharge piping with quick couple disconnect to load leachate into tankers for hauling (NOTE: May need to evaluate submersible pump versus centrifugal split casing transfer pump.

10. **HDPE Liner Inside Tank:** Clean and acid wash tank, install 40 ml HDPE liner inside tank.

TABLE 2 (Cont'd)

11. **Additional Heat:** Install two XP 35 MBH electric heaters with thermostats, wiring and controls (NOTE: electrical consumption may require an assessment of load availability on the incoming electrical service).

B. DECON PAD AND ACCESS

1. **Loading Platform:** Remove topsoil, build asphalt pad with drain to collection tank, and fill.

2. **Widen Road:** Widen road in areas shown on attached sketch.

C. ELECTRICAL SYSTEM

1. **Line from Main Road to Pump:** Install new service riser with line, panel board and breaker.

2. **Strip Pad Heater:** Install heater pads in all panels.

3. **Ampmeter for Well Pumps:** Install ampmeters for all four leachate collection well pumps and transfer pump in tank.

FUTURE
TREATMENT FACILITY
(NOT IN THIS CONTRACT)
EXISTING
LEACHATE
COLLECTION TANK
STA. 6+50
P.C. ℄ STA 3+0
P.T. ℄ STA 3+
℄ CURV
Δ =
R =
T =
E =
D =
L =
PT. ℄
P.C. ℄ STA 4+05
60'
105'
82.5'
℄ CURVE DATA
Δ = 45°
R = 30'
T = 12.43'
E = 2.47'
D = 190°-59'09"
L = 23.56'
P.C. ℄ STA. 3+50.12
Δ=90°
R=60'
Δ=45°
R=120'
P.C. ℄ STA. 2+18
288
290
262
6
7
PARALLEL
56'
15'
105'
SOURCE OF THIS DRAWING
RECORD DRAWINGS
3/10/1988
STA 4+20
R=20'
R=20'
266'
285'
10'
SENECA
280.2

DRAFT

POLLUTION ABATEMENT SERVICES
IMPROVEMENT SUGGESTED FOR IMMEDIATE CONSTRUCTION
(CONTRACT DOCUMENTS TO BE PREPARED
BY URS CONSULTANT UNDER TASK-5
OF O&M CONTRACT)

Requested U.S. Construction Contract for submittal of these activities

(A) LEACHATE COLLECTION TANK:

1. Piping modifications to replace existing ball valve and prevent back flow to wells.

2. Seal hairline cracks and provide suitable seal coat on inside of tank.

3. Insulate roof - add couple vents.

4. Rebuild end walls (top of concrete tank and below roof) and install double pane glass doors.

5. Insulate around tank up to top of HDPE liner.

6. Install explosion proof lighting inside tank.

7. Install flood light outside tank.

8. Install level control instrumentation with heat tracer to eliminate freezing and connect system to automatic dialer.

9. Install independent pumping system in leachate collection tank with metering arrangement and easy non-drip tanker hook-up for easy loading of leachate.

10.* Install leak proof liner inside tank.

11.* Provide additional heat with thermostat control to eliminate freezing.

(B) DECON PAD & ACCESS ROAD MODIFICATIONS:

1. Construct 50' x 20' contained decon and leachate loading platform as shown on attached drawing.

2. Modify access road and parking area as shown.

(C) ELECTRICAL SYSTEM:

1. Electrical line from main control panel to leachate tank for pump installation.

2. Strip pad heater's inside all control panels and automatic dialer.

3. Install amp. meters on well pumps

*NOTE: Need to be evaluated. the units.

a:improve.pas:AKG:et

URS

URS CONSULTANTS, INC.
282 DELAWARE AVENUE
BUFFALO, NEW YORK 14202-1805
(716) 856-5636
FAX. (716) 856-2545

July 10, 1991

Mr. A.K. Gupta, P.E., Project Manager
Bureau of Construction Services
Division of Hazardous Waste Remediation
NYS Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-7010

JUL 15 1991

RE: PAS SITE O&M SITE NO. 7-38-001 (W.A. D002340-8)

Dear Mr. Gupta:

As per your request last week, we have developed preliminary construction cost estimates for individual items in your fax transmittal of June 26, 1991 related to immediate improvements at the PAS site. The estimated costs of individual items and basis for the costs are provided in the attached tables.

If you have any questions, please do not hesitate to call me.

Very truly yours,

URS CONSULTANTS, INC.

Dharmarajan Iyer

Dharmarajan R. Iyer, Ph.D.
Task Manager

DI/dm
35236B/7-3-91L
Enc.
cc: P. David Smith - NYSDEC
J. Gorton - URS
R. Hoffman, URS
J. Lysiak, URS
File 35236.00 (005)

TABLE 1

PAS SITE O&M
IMPROVEMENT SUGGESTED FOR IMMEDIATE CONSTRUCTION
PRELIMINARY COST ESTIMATES

A.	LEACHATE COLLECTION TANK	
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7.	Outside Floor Light	$ 1,000
8.	Level Control Instrumentation	$ 2,000
9.	Leachate Pumping system in Tank	$12,000
10.	HDPE Liner Inside Tank	$15,000
11.	Additional Heat	$10,000
B.	DECON PAD AND ACCESS LOAD MODIFICATIONS	
1.	Loading Platform	$ 4,000
2.	Widen Road	$ 2,000
C.	ELECTRICAL SYSTEM	
1.	Line from Main Parcel to Pump	$ 1,500
2.	Strip Pad Heater	$ 500
2.	APM meters for Well Pumps	$ 1,500
	TOTAL	$87,500

NOTE: Costs for work inside tank are based on Level 'C' Protection.

TABLE 2

PAS SITE O&M
IMPROVEMENTS SUGGESTED FOR IMMEDIATE CONSTRUCTION
BASIS FOR COST ESTIMATES

A. LEACHATE COLLECTION TANK

1. **Piping Modifications**: Modify piping with air-relief.

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3. **Insulate Roof**: Apply R5.7 fiberglass insulation over existing roof; install edge and end cap flashing, and single ply membrane roofing. Add ridge-vent and eve vents. (NOTE: existing metal deck roofing may have to be removed for work inside tank).

4. **Rebuild End Walls**: Remove existing endwalls and replace with new weather tight insulated walls (preserved wood sheeting, insulation and wood shake shingles). Add new steel doorways with wire glass viewpanes. (NOTE: larger size (or height) door may be needed for easier equipment access and egress from tank).

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6. **Light Inside Tank**: Add 4 each 175 watt XP mercury vapor lights with conduit and wiring.

7. **Outside Flood Light**: Add 2 each 250 watt mercury vapor lights (photo cell) with conduit and wiring.

8. **Level Control Instrumentation**: Install two (2) ultrasonic non-contact transceivers (multiple set points) with conduits and wiring (heat tracing not required; 2nd unit is for back-up).

9. **Install Leachate Pumping System in Tank**: Install leachate transfer pump and exterior discharge piping with quick couple disconnect to load leachate into tankers for hauling (NOTE: May need to evaluate submersible pump versus centrifugal split casing transfer pump.

10. **HDPE Liner Inside Tank**: Clean and acid wash tank, install 40 ml HDPE liner inside tank.

TABLE 2 (Cont'd)

11. **Additional Heat:** Install two XP 35 MBH electric heaters with thermostats, wiring and controls (NOTE: electrical consumption may require an assessment of load availability on the incoming electrical service).

B. DECON PAD AND ACCESS

1. **Loading Platform:** Remove topsoil, build asphalt pad with drain to collection tank, and fill.

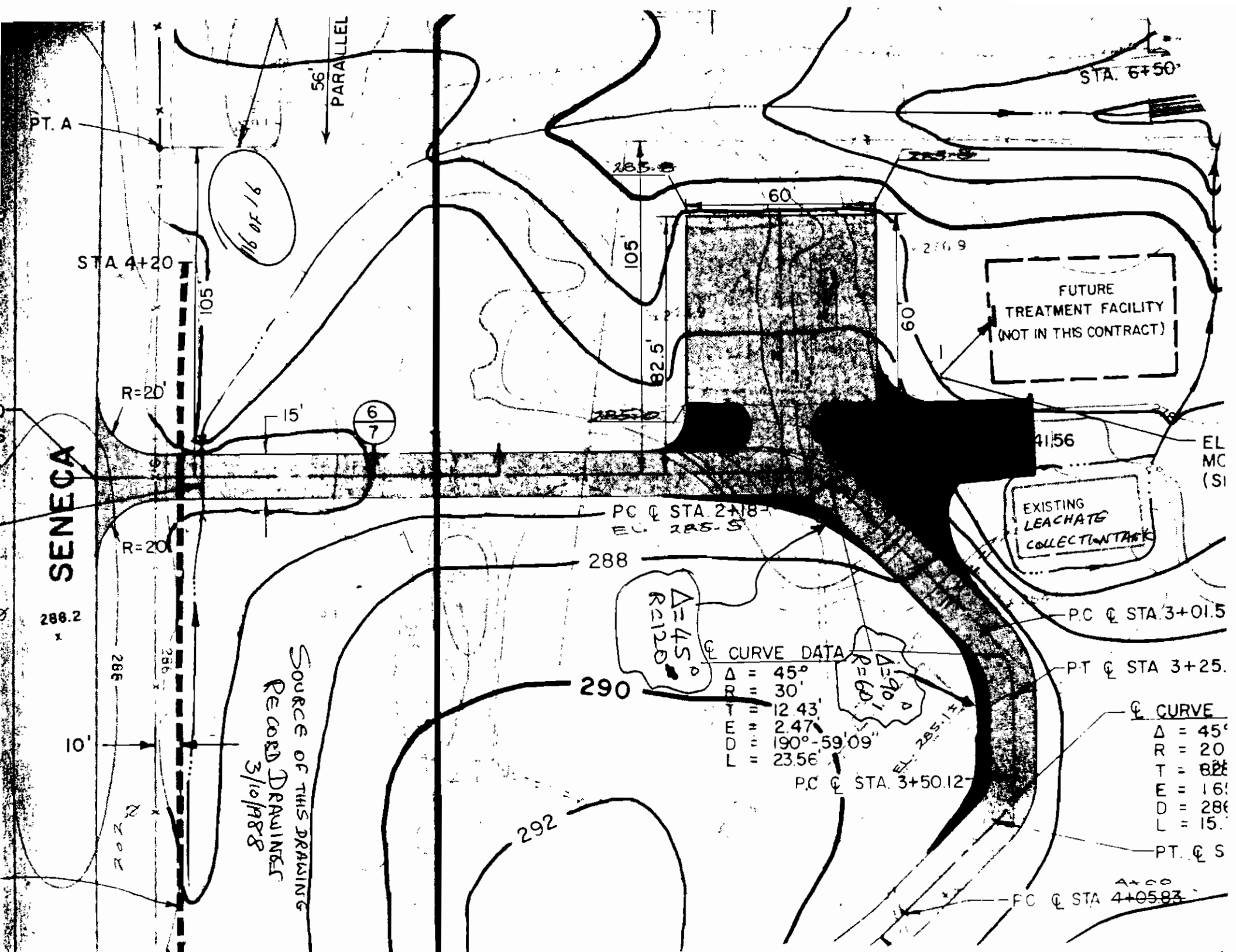
2. **Widen Road:** Widen road in areas shown on attached sketch.

C. ELECTRICAL SYSTEM

1. **Line from Main Road to Pump:** Install new service riser with line, panel board and breaker.

2. **Strip Pad Heater:** Install heater pads in all panels.

3. **Ampmeter for Well Pumps:** Install ampmeters for all four leachate collection well pumps and transfer pump in tank.


PT. A
56' PARALLEL
STA. 6+50
STA 4+20
105'
60'
105'
60
82.5'
FUTURE
TREATMENT FACILITY
(NOT IN THIS CONTRACT)
R=20'
15'
6/7
SENECA
EXISTING
LEACHATE
COLLECTION TANK
PC ℄ STA 2+18
EL. 285.5
R=20'
288
288.2
286
256
10'
Δ=45°
R=120'
℄ CURVE DATA
Δ = 45°
R = 30'
T = 12.43'
E = 2.47'
D = 190°-59'09"
L = 23.56'
Δ=90°
R=60'
EL. 285.1±
P.C ℄ STA. 3+50.12
P.C ℄ STA 3+01.5
P.T ℄ STA 3+25.
290
292
SOURCE OF THIS DRAWING
RECORD DRAWINGS
3/10/88
PT. ℄ S
P.C ℄ STA 4+05.83

A.K.

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233-7010

Thomas C. Jorling
Commissioner

MAY 16 1991

Dharmarajan R. Iyer, Ph.D
Project Manager
URS Consultants, Inc.
282 Delaware Avenue
Buffalo, NY 14202-1207

RE: Pollution Abatement Service (O&M) Site #7-38-001
Establishing Monuments and Horizontal Control

Dear Mr. Iyer:

This is to confirm our discussions of May 15, 1991 that the survey work at the above mentioned site be kept in abeyance until a decision on the construction of an on-site leachate treatment facility is made.

If you have any questions, please call me at 518/457-0927.

Sincerely,

A. K. Gupta, P.E.
Environmental Engineer 2
Operation & Maintenance Section
Bureau of Construction Services
Division of Hazardous Waste Remediation

cc: G. Rider
D. Smith
R. Lupe

a:monuhor.pas:AKG:et

URS
AN INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATION

April 24, 1991

URS CONSULTANTS, INC.
282 DELAWARE AVENUE
BUFFALO, NEW YORK 14202-1805
(716) 856-5636
FAX: (716) 856-2545

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APR 24 1991

Mr. A. K. Gupta, P.E., Project Manager
Bureau of Western Remedial Action
Division of Hazardous Waste Remediation
New York State Department of
Environmental Conservation
50 Wolf Road
Albany, New York 12233-7010

RE: PAS SITE O & M - SITE NO. 7-38-001 (W.A. D002340-8)
ESTABLISHING MONUMENTS AND HORIZONTAL CONTROL

Dear Mr. Gupta:

As per our previous discussions, we request an amendment to the approved Work Plan and Budget to include the following items as part of the initial survey of the monitoring wells at the site:

a) Re establish horizontal baseline on the driveway.
b) Establish two (2) references for horizontal and vertical con
c) Tie the two references to USGS datum.

baseline in previous drawings from the RI/FS and site remed
long East Seneca Street and was not tied into any other
e-establish the horizontal baseline parallel to East Sen
e access driveway within the fence, but outside the lia
ell cap. Two concrete monuments, each on either side of t
drive along the horizontal baseline, will be installed as vertical controls
These two reference points will also be tied to a USGS datum sea leve

We estim additional budget of $2,441.39 to accomplish the abo
item led breakdown of this request for a budget increase is pr
in t d table. The initial survey of the monitoring wells was
in th ved budget.

Please me if you have any questions or wish to discuss this request
further detail. Thank you.

Very truly yours,

URS CONSULTANTS, INC.

USGS Datum ?
State coordinate system ?

[signature]
[illegible]er, Ph.D.
Project Manager

DRI/ys
Attachment

--24-91L.AKG

cc: Mr. John Gorton - URS
File: 35236.00 (1000)

Post-it™ brand fax transmittal memo 7671 | # pages ▸ 2

To A K Gupta	From D Iyer
Co. DEC	Co. URS
Dept.	Phone #
Fax # (518) 457-3972	Fax #

TABLE

POLLUTION ABATEMENT SERVICES O & M (WA #D002340-8)
TASK 3· ESTABLISH CONTROL AND MONUMENT POINTS

DIRECT LABOR COSTS:

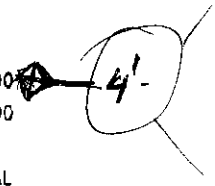
PROFESSIONAL LEVEL	LABOR CLASSIFICATION	YEAR 1990 No. of HOURS	YEAR 1990 DIRECT SALARY RATE	YEAR 1991 No. of HOURS	YEAR 1991 DIRECT SALARY RATE	YEAR 1992 No. of HOURS	YEAR 1992 DIRECT SALARY RATE	YEAR 1993 No. HOUR	YEAR 1993 DIRECT SALARY RATE	TOTAL HOURS	DIRECT SALARY COST
PROJECT DIRECTOR	IX		$36.30		$38.12		$40.02		$42.02		$0.00
PROGRAM MANAGER	VIII		$33.64		$35.32		$37.09		$38.94		$0.00
PROJECT MANAGER	VII		$27.21	4	$28.57		$30.00		$31.50	4	$114.28
ENGINEER 4	VI		$21.84	4	$22.93		$24.08		$25.28	4	$91.72
ENGINEER 3	V		$18.24		$19.15		$20.11		$21.12		$0.00
DRAFTSMAN	II		$10.57	44	$11.10		$11.66		$12.24	44	$488.40
TECHNICIAN 2	II		$10.57		$11.10		$11.66		$12.24		$0.00
SUBTOTALS		0		52		0		0		52	$694.40

TRAVEL AND SUBSISTANCE:

	No. of	UNITS	UNIT	TOTAL
AIR FARE	0	EACH	$300.00	$0.00
CAR RENTAL	0	DAYS	$50.00	$0.00
MILEAGE	400	MILE	$0.23	$92.00
PER DIEM	4	DAYS	$66.00	$264.00
TOLLS, ETC.		-	-	$10.00
			SUBTOTAL	$366.00

EQUIPMENT

ITEM	No.	UNITS	COST	
POST HOLE DIGGER ·	4	DAY	$20.00	$80.00
HEALTH & SAFETY-LVL D+	8	MAN/DAY	$26.00	$208.00
			SUBTOTAL	$288.00



A. TOTAL DIRECT LABOR COSTS	$694.40
B. INDIRECT LABOR COSTS @ 134%	$930.50
C. FEE ((A + B) * 10%)	$162.49
TOTAL TASK LABOR	$1,787.39
TOTAL TRAVEL AND SUBSISTANCE:	$366.00
TOTAL EQUIPMENT:	$288.00
TOTAL SUBCONTRACTOR:	$0.00
TOTAL TASK COST:	$2,441.39

URS
AN INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATION

April 24, 1991

URS CONSULTANTS, INC.
282 DELAWARE AVENUE
BUFFALO, NEW YORK 14202-1805
(716) 856-5636
FAX: (716) 856-2545

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APR 30 199

Mr. A. K. Gupta, P.E., Project Manager
Bureau of Western Remedial Action
Division of Hazardous Waste Remediation
New York State Department of
Environmental Conservation
50 Wolf Road
Albany, New York 12233-7010

RE: PAS SITE O & M - SITE NO. 7-38-001 (W.A. D002340-8)
ESTABLISHING MONUMENTS AND HORIZONTAL CONTROL

Dear Mr. Gupta:

As per our previous discussions, we request an amendment to the approved Work Plan and Budget to include the following items as part of the initial survey of the monitoring wells at the site:

a) Re-establish horizontal baseline on the driveway.
b) Establish two (2) references for horizontal and vertical controls.
c) Tie the two references to USGS datum.

The horizontal baseline in previous drawings from the RI/FS and site remediation were located along East Seneca Street and was not tied into any other system. We propose to re-establish the horizontal baseline parallel to East Seneca Street and across the access driveway within the fence, but outside the limits of the containment cell cap. Two concrete monuments, each on either side of the access driveway along the horizontal baseline, will be installed as vertical controls. These two reference points will also be tied to a USGS datum sea level.

We estimate an additional budget of $2,441.39 to accomplish the above three items. A detailed breakdown of this request for a budget increase is provided in the attached table. The initial survey of the monitoring wells was included in the approved budget.

Please call me if you have any questions or wish to discuss this request in further detail. Thank you.

Very truly yours,

URS CONSULTANTS, INC.

Dharmarajan R. Iyer, Ph.D.
Task Manager

DRI/ys
Attachment

4-24-91L.AKG

cc: Mr. John Gorton - URS
File: 35236.00 (1000)

TABLE

POLLUTION ABATEMENT SERVICES O & M (WA #D002340-8)
TASK 3: ESTABLISH CONTROL AND MONUMENT POINTS

DIRECT LABOR COSTS:

PROFESSIONAL LEVEL	LABOR CLASSIFICATION	YEAR 1990 No. of HOURS	YEAR 1990 DIRECT SALARY RATE	YEAR 1991 No. of HOURS	YEAR 1991 DIRECT SALARY RATE	YEAR 1992 No. of HOURS	YEAR 1992 DIRECT SALARY RATE	YEAR 1993 No. HOUR	YEAR 1993 DIRECT SALARY RATE	TOTAL HOURS	DIRECT SALARY COST
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PROGRAM MANAGER	VIII		$33.64		$35.32		$37.09		$38.94		$0.00
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SUBTOTALS		0		52		0		0		52	$694.40

TRAVEL AND SUBSISTANCE:

	No. of	UNITS	UNIT	TOTAL
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MILEAGE	400	MILE	$0.23	$92.00
PER DIEM	4	DAYS	$66.00	$264.00
TOLLS, ETC.		-	-	$10.00
			SUBTOTAL	$366.00

EQUIPMENT

ITEM	No.	UNITS	COST	
POST HOLE DIGGER	4	DAY	$20.00	$80.00
HEALTH & SAFETY-LVL O+	8	MAN/DAY	$26.00	$208.00
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A. TOTAL DIRECT LABOR COSTS	$694.40
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TOTAL TASK LABOR	$1,787.39
TOTAL TRAVEL AND SUBSISTANCE:	$366.00
TOTAL EQUIPMENT:	$288.00
TOTAL SUBCONTRACTOR:	$0.00
TOTAL TASK COST:	$2,441.39

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Christine Milligan 1/17/91

January 16, 1991

Mr. A. K. Gupta, P.E., Project Manager
Bureau of Western Remedial Action
Division of Hazardous Waste Remediation
NYS Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-7010

RE: POLLUTION ABATEMENT SERVICES O&M; W.A. D002340-8
INTERIM PLAN AND FACILITY EVALUATIONS

Dear Mr. Gupta:

Thank you for your letter of December 28, 1990 with comments on our Interim Plan for leachate level control and on our evaluations of the leachate collection system and the containment cell cap, all submitted under Tasks 2 and 3 of the subject work assignment. We have reviewed your letter and a meeting has been scheduled to discuss specific details related to key issues. Several of those are described in the following paragraphs.

Interim Plan

URS was under the impression (possibly mistaken), based upon your letter of November 13, that the leachate level inside the cell was critically high and should be immediately reduced to a point where the pressure gradients would be such as to induce flow inward. Our plan was developed with that as a primary objective. The secondary objective of the plan is to obtain some indication, other than theoretical, of leachate volume, sustainable pumping rates, and inflow to the cell. That information is required to replace the theoretical aspects of the present assessment of the economics of on-site treatment versus off-site disposal. Although removal rates may be lowered to any level desired, we should agree upon a program which will provide the data necessary for an assessment.

Leachate Holding Tank

A program to drain and clean the leachate holding tank, so that a thorough inspection can be accomplished, is currently in progress. Until that inspection is complete, URS does not wish to speculate on details of repair and/or modification.

On-Site Treatment

As we understand the scope of the work assignment, one of the tasks is to come to a final determination of the cost-effectiveness of on-site treatment as opposed to off-site disposal. The conceptual evaluation presented by URS is based on theoretical procedures. The inference drawn from comments in the letter is that on-site treatment has been selected. If that is so, we can omit the evaluation step and move directly to unit design.

Leachate Control

There appear to be differences in conclusions drawn from the interpretation of available data relating to leachate at the site. URS does not believe that the sporadic pumping of small quantities of leachate, since remediation was completed, has produced data adequate for characterization of site leachate volume or inflow. At this point, the use of conclusions drawn in conceptual work contained in the RI/FS report is probably not appropriate in as much as the selected remediation differs from the conceptual design. During our meeting, we need to arrive at a mutually acceptable program for leachate control during the O&M portion of this work assignment.

Very truly yours,

URS CONSULTANTS, INC.

for Dharmarajan R. Iyer, Ph. D.
Task Manager

DRI/ys

1-16-91.AKG

cc: P. David Smith - NYSDEC
Gerald Rider - NYSDEC
Raymond Lupe - NYSDEC
John Gorton - URS
Charles Hurley - URS
File: 35236.00 (1000)

NYS DEPT. OF ENV. CONSERVATION
50 WOLF ROAD
ALBANY, NY 12233

DIVISION OF HAZARDOUS WASTE REMEDIATION
BUREAU OF WESTERN REMEDIAL ACTION
SPECIAL PROJECTS SECTION

TELECON REPORT

FROM : A.K. Gupta Of ~~XXX~~ O&M Section

TO : Dick Brazell Of Region-7

DATE : 12/19/90 SUB PAS Site

BACKGROUND/SUMMARY : Tie details on Record Drawings indicate that ~~the~~ a sand cushion has been provided under HDPE liner & top of slurry wall providing a preferential path for escape of leachate. Also this sand cushion may result in very high infilteration through cap.

TELECON : I Requested Dick to explain me about the details of connection (as build) between Slurry Wall & cap. Also a request was made to provide quality of sand used as Cushion. Dick responded that he will Fax & Mail the Spec. of sand used on site. Also he mentioned that ~~the~~ Sand cushion extends over the Slurry Wall. ~~The~~ Dick also mentioned that in the past ~~the~~ when construction was completed & leachate pumping was never done due to funding shortage the leachate ~~ex~~ levels within cell were high enough to force leachate out above the slurry wall & below the liner. He mentioned that in past leachate has leaked ~~out~~ out ~~leaks~~ from between Slurry wall & cap. but now the leachate levels are lower than these old levels. It is possible that leakage is still occuring at lower Section of slurry wall.

Copy : GJR___ JJW___ FILE___

POLLUTION ABATEMENT SERVICES

(Preliminary) OPERATING COST ESTIMATES

SYSTEM	FLOW RATE	CAPITAL COST		ANNUAL COST		AMMORTIZED ANNUAL COST	
GRANULAR ACTIVATED CARBON	5 GPM	[illegible]	[illegible]	[illegible]	150,000	83,000	264,000
AIR STRIPPER & GRANULAR ACTIVATED CARBON	50 GPM	[illegible]	[illegible]	[illegible]	200,000	[illegible]	395,000
SEQUENCED BATCH REACTOR	50 GPM	[illegible]	[illegible]	[illegible]	150,000	150,000	280,000
SEQUENCED BATCH REACTOR - RENTAL	50 GPM			180,000	[illegible]	180,000	400,000
SEQUENCED BATCH REACTOR - SKID MOUNTED	50 GPM	[illegible]	[illegible]	[illegible]	150,000	116,000	248,000
OFF-SITE DISPOSAL ($0.81/gal)	2,000 GPD				520,000		520,000
OFF-SITE DISPOSAL ($0.81/gal)	20,000 GPD				5,200,000		5,200,000

NOTES: COST IS AMMORTIZED OVER TEN (10) YEARS AT 10%

POLLUTION ABATEMENT SERVICES
(Preliminary) OPTION COST ESTIMATES

SYSTEM	FLOW RATE	CAPITAL COST	O&M COST	AMMORTIZED ANNUAL COST
GRANULAR ACTIVATED CARBON	5 GPM	200,000 - 700,000	50,000 - 150,000	83,000 - 264,000
AIR STRIPPER & GRANULAR ACTIVATED CARBON	50 GPM	500,000 - 1,200,000	100,000 - 200,000	181,000 - 395,000
SEQUENCED BATCH REACTOR	50 GPM	500,000 - 800,000	75,000 - 150,000	156,000 - 280,000
SEQUENCED BATCH REACTOR - RENTAL	15 GPM	-	180,000 - 400,000	180,000 - 400,000
SEQUENCED BATCH REACTOR - SKID-MOUNTED	15 GPM	250,000 - 600,000	75,000 - 150,000	116,000 - 248,000
OFF-SITE DISPOSAL ($0.81/gal)	2,000 GPD	-	520,000	520,000
OFF-SITE DISPOSAL ($0.81/gal)	20,000 GPD	-	5,200,000	5,200,000

NOTES: COST IS AMMORTIZED OVER TEN (10) YEARS AT 10%

URS

What is area of Cap - 7.5 acres

URS

A.K.GUPTA.

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Thomas C. Jorling
Commissioner

DEC 2 8 1990

Dharmarajan R. Iyer, Ph. D.
Task Manager
URS Consultants, Inc.
570 Delaware Avenue
Buffalo, NY 14202

RE: Pollution Abatement Services O&M
Interim Plan to Lower Leachate Levels, and
Evaluation of Leachate Collection System and Containment Cell Cap

Dear ~~Mr. Iyer:~~ Dharma.

The URS's submittal for Interim Plan to lower the leachate level within the Pollution Abatement Services (PAS) containment cell was received on November 26, 1990. Thereafter the draft report on Task 2 and 3, Evaluation of Leachate Collection System and Containment Cell Cap was received on December 3, 1990. The Department has completed its review of the above mentioned submittals and has the following comments:

Interim Plan:

The Department agrees that the removal of leachate from the containment cell should begin as soon as possible but at a realistic rate. We strongly feel that the volume of leachate to be removed in the time frame proposed in your "Interim Plan" is neither cost effective nor feasible. The leachate removal should be done while an on-site treatment system is being implemented. During April-May 1990 a total of about 56,000 gallons of leachate was pumped out from the site and the monthly groundwater elevations within the containment cell showed a drop of 0.91' to 3.50' with a time lag varying from one to six months depending upon monitoring well location. Also it was observed that the groundwater elevations within the cell between 12/89 to 12/90 remained basically unchanged in-spite of removal of 56,000 gallons of leachate. This indicates that in one year, at the existing groundwater elevations, about 56,000 gallons of inflow occurred. This assumes that no other water was leached out the site.

Keeping the above in mind, the Department suggests that consideration be given to removing 50,000 gallons of leachate in the first month and thereafter 10,000 gallons every month until on-site system is made operative. This will conform to the conditions of the past year and we believe maintain the water level below the lowest top elevation of the slurry wall (near well SWW 11). Also it is recommended that the leachate removal should be scheduled during the second week of each month, the department will take the groundwater elevations during the first week of

each month. The Department does not agree to the need to take groundwater elevations at an increased frequency. The URS's submittal of quotes for leachate disposal was received on December 21, 1990 and is being reviewed by the Department.

Comments on Task 2 and 3 Report:

1. Page 1. The site visit was done on October 24, 1990. Please correct the date at all locations in the report.

2. Page 2. On-site inspection of the leachate holding tank has determined that it is in poor condition and probably leaks. The concrete tank should be sealed or perhaps a liner can be installed to eliminate potential leakage. The tank repair can be undertaken when the tank is cleaned. Also the tank roof and sides should be insulated at the same time to at-least four (4) feet below ground or up to the top of the HDPE liner on the outside of the tank. The tank repair will allow the use of more of the tanks volume (that portion above the HDPE liner elevation).

3. Page 3. The automatic control system in the leachate recovery wells should be checked and repaired through the general operation and maintenance activities at this site. These types of activities may be included in a general electrical/mechanical portion of O&M subcontract for this site.

4. Page 4. Once the leachate holding tank is repaired and insulated the freezing problem will be less severe. The URS should give consideration to providing heat with thermostat control thus eliminating freeze and thaw damage to the tank and assures proper operation of the equipment.

5. Page 6. According to the historical records the leachate was pumped as follows:

2915 Sugal

Period	Quantity (Gallons)	Contractor
1988	391,000	Sevenson
8/88 to 11/88	14,912	Frontier Chemical
8/89	15,000(approx)	Frontier Chemical
4/90	4,000(approx)	Frontier Chemical
5/90 to 6/90	52,144	Environmental Prod.

It appears that the total volume of leachate to be pumped out from the site to lower the leachate elevations to 264' may be close to six (6) million gallons. The time frame as suggested by URS does not seems to be realistic.

The recharge rate of the leachate trench appears to be approximately 1,000 gallons per day. URS in previous reports has used a recharge rate similar to this. In the RI/FS report (page 103) URS estimated that the recharge rate would allow a removal rate of 250,000 gallons/yr (960 gal/weekday) and stated that the average rate of leachate generation would decline with time as the water table

elevation decreased. On page 116 of the RI/FS, the treatment system is designed for 24,000 gallons every 5 day week (960 gal/weekday).

This rate of recharge is also suggested by field measurements. On June 30, 1987 leachate was pumped for 4 hours. Approximately 36,000 gallons of leachate was removed from the collection trench. Leachate levels were still 0.8 ft. lower when measured 14 days later. Levels did not fully recover until August 4th, 36 days after pumping.

From this information it appears that the existing collection system cannot sustain the pumping rates in the new URS proposal and that the recharge rates in the earlier URS reports seem more accurate.

6. Page 7. See comment # 5 above. The cap as designed and constructed, is not the the current state-of-the-art type (i.e. HDPE liner and clay layer underneath). The sand layer installed under the HDPE liner at the PAS site will not contribute to the cap's ability to prevent precipitation and snow melt from entering the landfill. With this in mind, the URS should re-evaluate their assumption that infiltration through the cap is insignificant. Perhaps, in long term, reconstruction of the cap should be considered with the intent to reduce the leachate production.

7. Page 8. It appears that in short-term to lower the leachate elevation within the containment cell, as well as in the long-term for continued treatment and disposal of leachate, an on-site alternative is more economical. It is suggested that an emergency pumping at the rates as indicated in the comments for the interim plan should be performed. In the mean time a rental on-site high capacity unit should be operated for about one year. The data generated during this period should be used for sizing of a long-term on-site treatment plant. Also past studies be consulted for the design alternatives.

8. Page 9. The sizing of an on-site treatment unit should be done on the basis of the most economical capitalized cost for the life of the project.

9. Page 11. The proposed additional on-site benchmark should not be on the landfill. The electrical panel wall as suggested by URS is on the landfill and therefore, unacceptable.

10. Page 12. After one time bush-hog the site should be mowed at a regular interval, minimum two times per year. Also the foliage should be trimmed back five (5) feet from fence. If possible, the fertilizer application should be limited to twice a year and perhaps once per year after vegetation is established.

11. Page 15. The site visit was done on October 24, 1990.

12. Page 16. Item 7; Complete the sentence "due to previous days <u>rains</u>."

13. Page 17. Item 16; What are sun boots?

14. Appendix D. Page I-2; Date of observation should be included in the table. Also the summary should be updated to include latest data. Enclosed is a copy of groundwater elevation data from 4/89 thru 12/90 (see attachment 1).

Groundwater Volumes and Flow Calculations. See comment # 6 above. The calculations to determine flow thru the slurry wall assumed a thickness of three (3) feet while the wall is actually at least four (4) feet thick (Final Engineering Report, Page 28). The calculations to determine flow thru the lodgement till did not take into account that this till exhibits vertical permeability anistorophy and flow rates may in fact be much lower than calculated. The URS's estimates as submitted now are significantly different then their past estimates as per RI/FS August 1985, and Evaluation of Treatment Alternatives October 1985. Which estimate should be adopted and why?

16. Appendix F. See comment # 7 above.

17. Appendix I. The area between the pavement in front of the storage shed and the access road should be squared off for ease of snow plowing (see attached drawing).

If you have any questions, please call me at (518)457-0927.

Sincerely,

A. K. Gupta

Ashok K. Gupta, P.E.
Environmental Engineer II
Operation and Maintenance Section
Div. of Hazardous Waste Remediation

Attachments

cc: R. Lupe
G. Rider

ATTACHMENT-1

PAS GROUNDWATER ELEVATIONS LONG-TERM MONITORING WELLS

	date	SWW1		SWW2		SWW3		SWW4		SWW5		SWW6		SWW7		SWW8		SWW9		SWW10		SWW11		SWW12	
			gr.286.2		gr.286.3		gr.286		gr.282.9		gr.275.9		gr.270.9		gr.275.3		gr.275.7		gr.283.3		gr.279.3		gr.271.		gr.270.2
		tor	elev	tor	elev	tor	elev	tor	elev	tor	elev	tor	elev	tor	elev	tor	elev	tor	elev	tor	elev	tor	elev	tor	elev
			289.33		289.37		286.50		283.60		277.02		273.06		277.93		278.24		285.55		280.43	liner	273.50 269.08		272.82
4	04/06/89	-8.94	280.39	-14.54	274.83	-15.15	271.35	-12.81	270.79	-8.36	268.66	-6.91	266.15	-5.18	272.75	-3.94	274.30	-15.63	270.00	-9.79	270.64	-5.33	268.17	-7.21	265.61
5	05/04/89	-9.50	279.82	-14.42	274.95	-15.00	271.49	-14.79	268.81	-8.67	268.35	-7.25	265.81	-5.39	272.54	-4.25	273.99	-15.71	269.84	-11.18	269.25	-5.37	268.13	-7.56	265.26
6	06/05/89	-9.50	279.82	-14.16	275.21	-14.67	271.83	-15.08	268.52	-7.79	269.23	-7.21	265.85	-5.18	272.75	-4.06	274.18	-15.43	270.12	-11.39	269.04	-4.91	268.59	-7.69	265.13
7																									
8																									
9	09/11/89	-10.44	278.89	-14.71	274.66	-14.75	271.75	-15.92	267.68	-9.33	267.69	-7.75	265.31	-6.22	271.71	-6.31	271.93	-15.92	269.63	-14.66	265.77	-5.71	267.79	-7.94	264.88
10	10/25/89	-10.13	279.20	-14.92	274.45	-14.92	271.58	-14.60	269.00	-8.67	268.35	-6.33	266.73	-6.26	271.67	-4.56	273.68	-16.38	269.17	-13.85	266.58	-5.39	268.11	-6.27	266.55
11	11/12/89	-9.75	279.58	-14.58	274.79	-14.67	271.83	-13.54	270.06	-10.67	266.35	-7.75	265.31	-5.55	272.38	-4.31	273.93	-15.92	269.63	-10.60	269.83	-6.54	266.96	-7.69	265.13
12	12/28/89	-9.92	279.41	-14.88	274.49	-15.08	271.42	-15.56	268.04	-8.83	268.19	-8.21	264.85	-5.64	272.29	-4.44	273.80	-15.84	269.71	-12.43	268.00	-5.42	268.08	-7.85	264.97
1	01/17/90	-8.75	280.58	-14.75	274.62	-15.00	271.50	-13.42	270.18	-8.46	268.56	-7.44	265.62	-5.27	272.66	-3.67	274.57	-15.50	270.05	-10.00	270.43	-5.16	268.34	-7.35	265.47
2	02/14/90	-8.29	281.04	-14.46	274.91	-14.92	271.58	-13.54	270.06	-8.67	268.35	-7.71	265.35	-5.46	272.47	-3.92	274.32	-15.25	270.30	-10.16	270.27	-5.21	268.29	-8.00	264.82
3	03/28/90	-8.67	280.66	-14.14	275.23	-14.67	271.83	-14.25	269.35	-8.33	268.69	-7.75	265.31	-5.08	272.85	-4.16	274.08	-14.92	270.63	-10.59	269.74	-4.79	268.71	-8.12	264.70
4	04/24/90	-8.54	280.79	-13.92	275.45	-14.38	272.12	-13.71	269.89	-7.67	269.35	-6.75	266.31	-4.92	273.01	-3.79	274.45	-14.75	270.80	-10.44	269.99	-4.25	269.25	-7.42	265.40
5	05/07/90	-9.16	280.17	-13.83	275.54	-14.63	271.87	-14.63	268.97	-8.00	269.02	-7.42	265.64	-4.92	273.01	-3.67	274.57	-15.00	270.55	-11.42	269.01	-4.83	268.67	-7.42	265.40
6	06/11/90	-9.42	279.91	-14.00	275.37	-14.69	271.81	-15.38	268.22	-9.50	267.52	-7.75	265.31	-5.38	272.55	-4.42	273.82	-15.16	270.39	-12.46	267.97	-5.42	268.08	-7.54	265.28
7	07/18/90	-10.31	279.02	-14.33	275.04	-14.67	271.83	-15.63	267.97	-8.38	268.64	-7.67	265.39	-5.88	272.05	-5.33	272.91	-15.12	270.43	-13.88	266.55	-4.92	268.58	-7.69	265.13
8	08/21/90	-10.67	278.66	-14.88	274.49	-14.84	271.66	-15.08	268.52	-8.42	268.60	-7.58	265.48	-8.42	269.51	-6.83	271.41	-16.00	269.55	-15.00	265.43	-4.90	268.60	-7.61	265.21
9	09/27/90	-11.00	278.33	-15.33	274.04	-15.04	271.46	-15.96	267.64	-8.69	268.33	-8.00	265.06	-7.08	270.85	-7.92	270.32	-16.50	269.05	-15.88	264.55	-5.18	268.32	-8.21	264.61
10	10/15/90	-10.04	279.29	-15.29	274.08	-15.08	271.21	-14.46	269.14	-8.00	269.02	-6.71	266.35	-6.48	271.45	-4.52	273.72	-16.60	268.95	-14.67	265.76	-5.12	268.38	-6.94	265.88
11	11/26/90	-9.35	279.98	-14.92	274.45	-15.16	271.34	-13.75	269.85	-9.08	267.94	-7.29	265.77	-6.21	271.72	-4.23	274.01	-16.08	269.47	-11.08	269.35	-5.67	267.83	-7.60	265.22
12	12/10/90	-8.77	280.56	-14.83	274.54	-15.00	271.50	-13.10	270.50	-8.67	268.35	-6.75	266.31	-5.75	272.18	-3.92	274.32	-15.77	269.78	-10.31	270.12	-5.16	268.34	-7.21	265.61

PAS GROUN

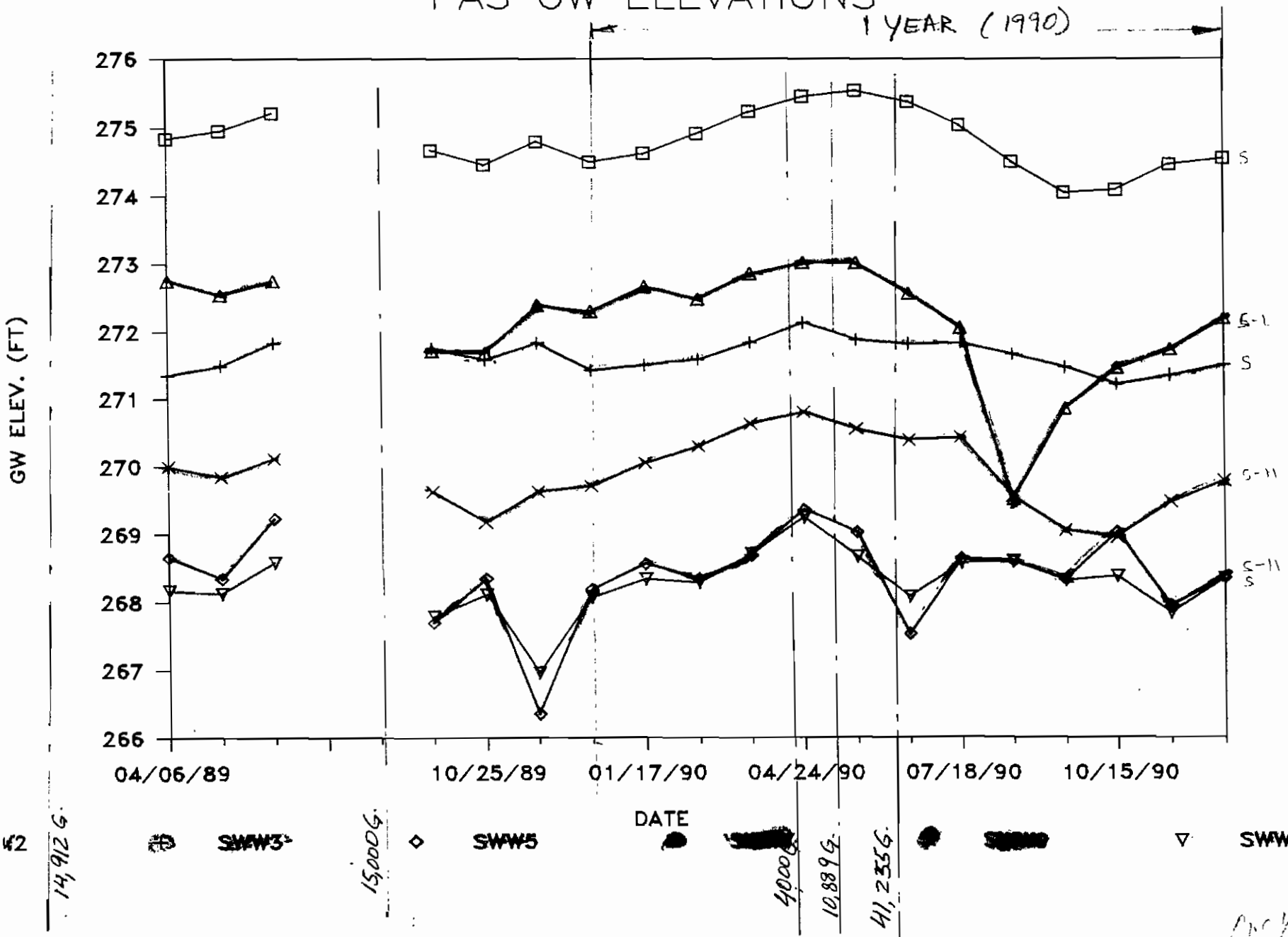
date	LSZ		LD2		LR2		LO3		LR3		LD4		LD5		LS6		LD6		LR5		LD8		LR8	
		gr.287.5		gr.287.1		gr.287.5		gr.275.8		gr.275.5		gr.276.3		gr.270.2		gr.271.4		gr.270.9		gr.270.9		gr.269.9		gr.270
	tor	elev	tor	elev	tor	elev	tor	elev	tor	elev	tor	elev	tor	elev	tor	elev	tor	elev	tor	elev	tor	elev	tor	elev
		289.81		289.73		289.85		278.62		278.06		279.25		272.94		274.14		274.03		274.39		272.83		273.42
04/06/89							-4.38	274.24	-8.74	269.32	-9.41	269.84	-7.21	265.73	-8.19	265.95	-8.42	265.61	-10.64	263.75	-5.52	267.31	-7.64	265.78
05/04/89	-5.75	284.06	-8.57	281.16	-14.89	274.96	-4.42	274.20	-9.20	268.86	-10.77	268.48	-7.52	265.42	-8.63	265.51	-9.75	264.28	-11.26	263.13	-6.52	266.31	-8.72	264.70
06/05/89	-6.50	283.31	-8.77	280.96	-15.15	274.70	-4.67	273.95	-9.32	268.74	-10.77	268.48	-7.69	265.25	-8.79	265.35	-8.58	265.45	-11.30	263.09	-6.89	265.94	-8.80	264.62
09/11/89	-9.54	280.27	-10.07	279.66	-16.76	273.09	-6.71	271.91	-10.90	267.16	-13.18	266.07	-7.96	264.98	-9.27	264.87	-8.58	265.45	-12.39	262.00	-7.14	265.69	-10.26	263.16
10/25/89	-6.17	283.64	-5.80	283.93	-15.68	274.17	-4.96	273.66	-9.51	268.55	-12.75	266.50	-6.15	266.79	-7.54	266.60	-7.58	266.45	-10.84	263.55	-5.66	267.17	-8.39	265.03
11/12/89	-5.25	284.56	-8.32	281.41	-14.60	275.25	-4.63	273.99	-9.32	268.74	-10.23	269.02	-7.77	265.17	-9.21	264.93	-8.75	265.28	-11.51	262.88	-6.48	266.35	-8.64	264.78
12/28/89	-7.67	282.14	-8.61	281.12	-14.93	274.92	-4.79	273.83	-9.82	268.24	-11.35	267.90	-7.36	265.58	-9.54	264.60	-9.29	264.74	-11.80	262.59	-7.23	265.60	-9.51	263.91
01/17/90	-4.16	285.65	-6.25	283.48	-13.92	275.93	-4.00	274.62	-9.00	269.06	-9.38	269.87	-7.21	265.73	-8.27	265.87	-8.88	265.15	-11.00	263.39	-6.00	266.83	-7.92	265.50
02/14/90	-4.79	285.02	-6.75	282.98	-13.83	276.02	-4.33	274.29	-8.92	269.14	-9.54	269.71	-7.92	265.02	-9.16	264.98	-8.88	265.15	-11.00	263.39	-5.58	267.25	-7.58	265.84
03/28/90	-6.46	283.35	-7.42	282.31	-14.00	275.85	-4.46	274.16	-9.00	269.06	-9.83	269.42	-8.25	264.69	-9.33	264.81	-9.00	265.03	-11.16	263.23	-6.46	266.37	-8.67	264.75
04/24/90	-5.88	283.93	-7.16	282.57	-13.83	276.02	-4.21	274.41	-8.83	269.23	-9.71	269.54	-7.58	265.36	-8.65	265.49	-8.54	265.49	-10.83	263.56	-6.00	266.83	-7.88	265.54
05/07/90	-4.90	284.91	-7.12	282.61	-14.16	275.69	-3.92	274.70	-8.88	269.18	-10.58	268.67	-7.67	265.27	-8.83	265.31	-8.58	265.45	-11.00	263.39	-5.58	267.25	-8.16	265.26
06/11/90	-7.42	282.39	-7.92	281.81	-14.08	275.77	-4.67	273.95	-9.25	268.81	-11.42	267.83	-7.67	265.27	-9.16	264.98	-9.00	265.03	-11.25	263.14	-6.77	266.06	-9.00	264.42
07/18/90	-9.25	280.56	-8.56	281.17	-15.58	274.27	-5.71	272.91	-10.58	267.48	-12.58	266.67	-7.75	265.19	-9.40	264.74	-8.71	265.32	-12.50	261.89	-7.16	265.67	-10.67	262.75
08/21/90	-9.16	280.65	-8.75	280.98	-18.04	271.81	-7.08	271.54	-11.12	266.94	-13.46	265.79	-7.83	265.11	-9.23	264.91	-8.31	265.72	-12.75	261.64	-7.54	265.29	-10.83	262.59
09/27/90	-8.58	281.23	-8.63	281.10	-16.23	273.62	-8.29	270.33	-11.75	266.31	-14.21	265.04	-8.33	264.61	-10.00	264.14	-9.04	264.99	-13.18	261.21	-7.29	265.54	-11.06	262.36
10/15/90	-4.85	284.96	-7.27	282.46	-15.06	274.79	-5.02	273.60	-10.00	268.06	-13.38	265.87	-7.12	265.82	-8.19	265.95	-8.21	265.82	-11.83	262.56	-5.88	266.95	-9.58	263.84
11/26/90	-5.25	284.56	-7.27	282.46	-14.21	275.64	-4.58	274.04	-9.60	268.46	-10.48	268.77	-7.67	265.27	-8.96	265.18	-8.58	265.45	-12.04	265.81	-5.29	267.54	-9.50	263.92
12/10/90	-5.08	284.73	-7.08	282.65	-12.58	277.27	-4.08	274.54	-9.23	268.83	-9.77	269.48	-7.44	265.50	-8.63	265.51	-9.42	264.61	-11.54	264.97	-5.12	267.71	-8.79	264.63

PAS GROUN

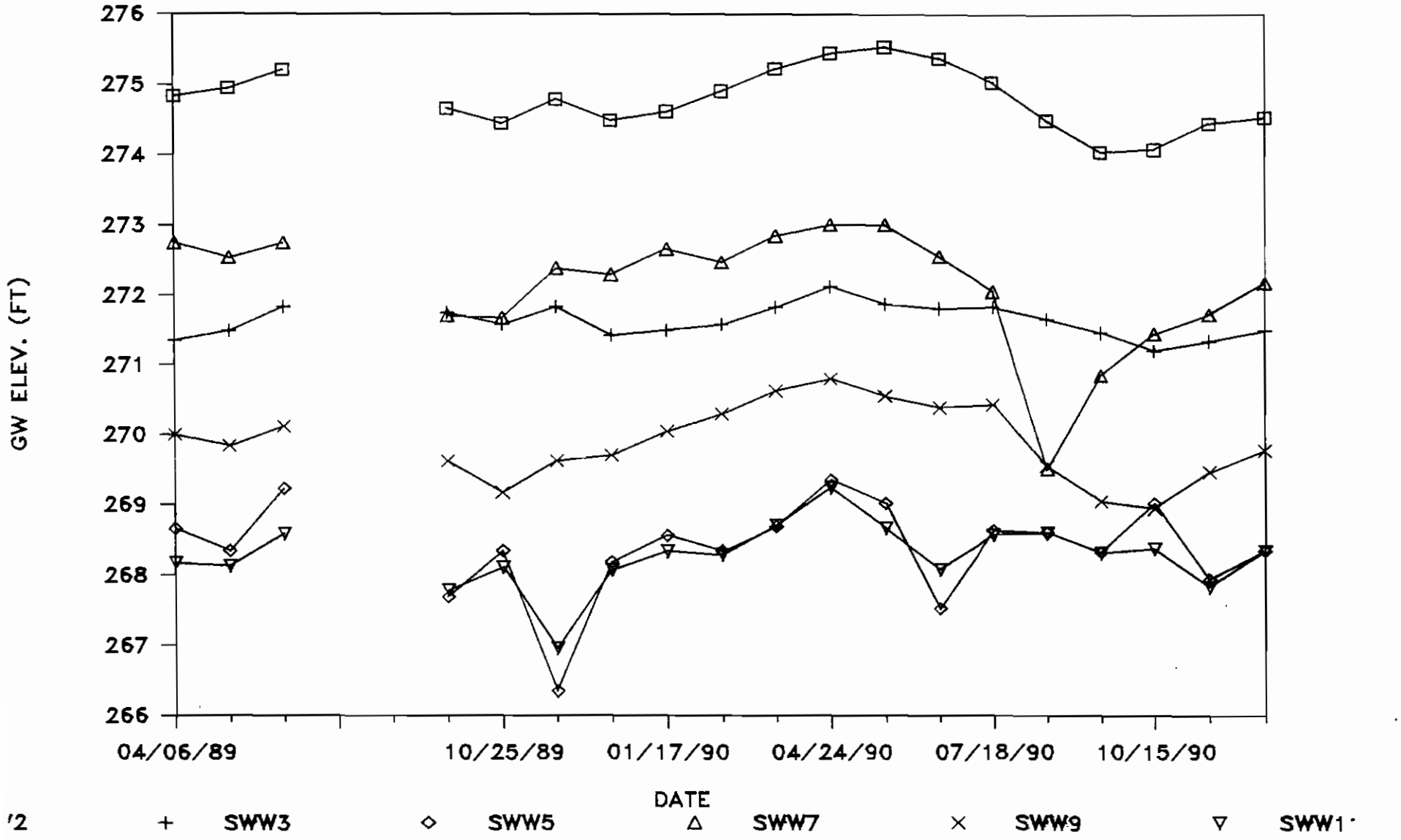
	date	LS9 gr.274 tor	elev 276.72
4	04/06/89	-8.27	268.45
5	05/04/89	-8.34	268.38
6	06/05/89	-8.63	268.09
7			
8			
9	09/11/89	-9.63	267.09
0	10/25/89	-8.46	268.26
1	11/12/89	-8.54	268.18
2	12/28/89	-8.71	268.01
1	01/17/90	-8.21	268.51
2	02/14/90	-8.16	268.56
3	03/28/90	-8.50	268.22
4	04/24/90	-8.25	268.47
5	05/07/90	-8.42	268.30
	06/11/90	-8.67	268.05
	07/18/90	-8.88	267.84
1	08/21/90	-9.00	267.72
1	09/27/90	-8.79	267.93
	10/15/90	-8.00	268.72
	11/26/90	-7.73	268.99
	12/10/90	-7.75	268.97

PROPOSED SECONDARY CONTAINMENT & DECON AREA (50' x 20' x 2')
EXIST LEACHATE COLLECTION TA
P.C. ℄ STA. 3+56
℄ CURVE DATA
PT ℄ STA. 3+25
SWW #
Spare ft to top plane
Δ = 90
R = 60'
PT = PC
℄ CURVE DATA
R = 30'
T = 12.43'
L = 23.50'
STA. 2+18
Δ = 180°
R = 7.5
Δ = 45°
R = 120'
SWW 2
PC ℄ STA. 1+80
HOSE BIBB
CULVERT

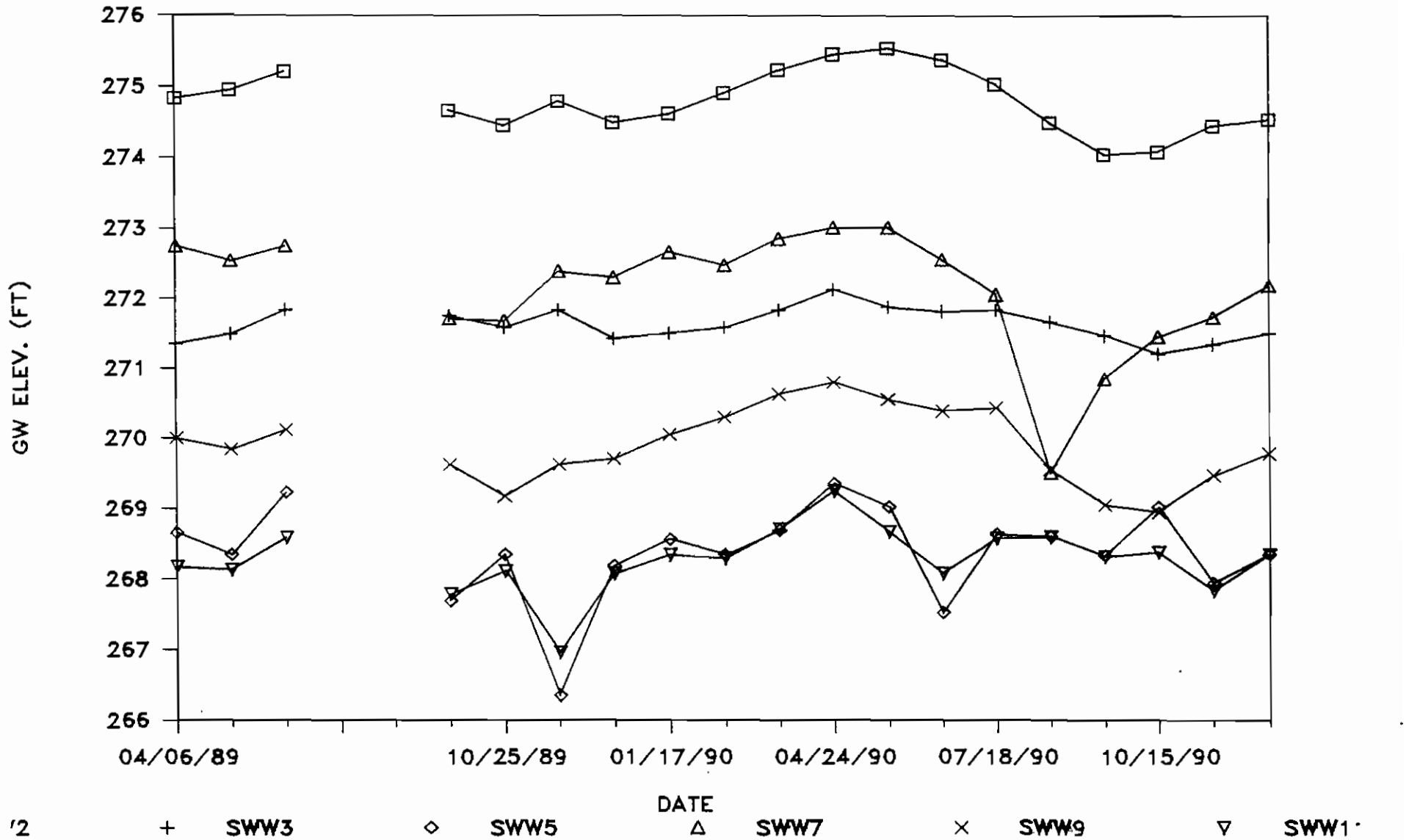
PAS GW ELEVATIONS



PAS GW ELEVATIONS



PAS GW ELEVATIONS



15 (12-75)

New York State Department of Environmental Conservation

MEMORANDUM

TO: A.K. Gupta, O&M Section
FROM: Bob Edwards, CRP Section
SUBJECT: URS Interim Plan for the PAS Site

DATE: DEC 06 1990

I have reviewed the "Interim Plan to Lower Leachate Levels" submitted by URS.

This plan calls for the removal of 20,000 gal/weekday of leachate from the site. This is 400,000 gallons of leachate to be removed during the first 4 weeks. After this URS will modify the pumping rates if needed. A long-term rate of 2,000 to 7,000 gallons/day is recommended in this plan as the required rate needed to maintain an inward gradient across the contaminant cell.

This plan "as is" is not feasible for many reasons. The foremost reason is that the recharge rate of the leachate collection trench is nowhere near the proposed pumping rates. Any system designed to handle the pumping rates proposed would be vastly oversized.

The recharge rate of the leachate collection trench appears to be approximately 1,000 gallons per day. URS in previous reports has used a recharge rate similar to this. In the RI/FS report (page 103) URS estimated that the recharge rate would allow a removal rate of 250,000 gallons/yr (960 gal/weekday) and stated that the average rate of leachate generation would decline with time as the water table elevation decreased. On page 116 of the RI/FS, the treatment system is designed for 24,000 gallons every 5 weeks (960 gal/weekday).

This rate of recharge is also suggested by field measurements. On June 30, 1987 leachate was pumped for 4 hours. Approximately 36,000 gallons of leachate was removed from the collection trench. Leachate levels were still 0.8 ft. lower when measured 14 days later. Levels did not fully recover until August 4th, 36 days after pumping.

It is apparent that the existing collection system cannot sustain the pumping rates in the new URS proposal and that the recharge rates in earlier URS work seem more accurate. Once a regular schedule of leachate removal is started my section will be able to monitor the collection system to determine recharge rates directly.

I also have comments on the URS Evaluation of the collection system and cap. They are as follows:

Page 4 - I would recommend that a new tank be installed instead of trying to improve the existing concrete "tank". I do not believe that the existing tank was meant to be used permanently.

Page 6 - Although water levels inside the cell are higher they

have not increased significantly within the last year.

Appendix D - The calculations to determine flow thru slurry wall assumed a thickness of 3 feet while the wall is actually at least 4 feet thick (Final Engineering Report, Page 28).

The calculations used to determine flow thru the lodgement till did not take into account that this till exhibits vertical permeability anistorophy and flow rates may in fact be much lower than calculated.

Finally the size of the on-site treatment system discussed in this proposal is based on a flow rate which cannot be sustained. I recommend that URS be directed to review its past work including the 1985 Evaluation of Alternatives for Treatment of PAS Groundwater/Leachate Final Report, the RI/FS, and the Final Engineering Report of March 1988.

Please keep me informed of the status of this project and see me if you have any questions.

DRAFT

FILE COPY

Originator

Dharmarajan R. Iyer, Ph. D.
Task Manager
URS Consultants, Inc.
570 Delaware Avenue
Buffalo, NY 14202

RE: Pollution Abatement Services O&M
Interim Plan to Lower Leachate Levels, and
Evaluation of Leachate Collection System and Containment Cell Cap

Dear Mr. Iyer:

The URS's submittal for Interim Plan to lower leachate level within containment cell was received on November 26, 1990. Thereafter the draft report on Task 2 and 3, Evaluation of Leachate Collection System and Containment Cell Cap was received on December 3, 1990. The Department has completed its review of the above mentioned submittals with the following comments:

Interim Plan:

Department agrees that the removal of leachate from the containment cell should begin as soon as possible but at a realistic rate. We strongly feel that the volume of leachate to be removed in the time frame proposed in your "Interim Plan" is not feasible. The leachate removal should be done while an on-site treatment system is being implemented. During April-May 1990 a total of about 56,000 gallons of leachate was pumped out from the site and the monthly groundwater elevations within the containment cell showed a drop of 0.91' to 3.50' with a time lag varying from one to six months depending upon monitoring well location. Also it was observed that the groundwater elevations within the cell between 12/89 to 12/90 remained basically unchanged in-spite of removal of 56,000 gallons of leachate. This indicates that in one year, at the existing groundwater elevations, about 56,000 gallons of inflow occurred. This is with the assumption that nothing else was leached out of the site.

Keeping above in mind, the Department recommends that 50,000 gallons of leachate be removed in first month and thereafter 10,000 gallons be removed every month until an on-site system is made operative. Also it is recommended that the leachate removal should be scheduled during the second week of each month, the department will make all the efforts to take the groundwater elevations during the first week of each month. The Department do not see any use of taking groundwater elevations at an increased frequency as suggested in URS's interim plan. The URS's submittal for quotes for leachate disposal was received on December 21, 1990 is being reviewed by the Department.

Comments on Task 2 and 3 Report:

1. Page 1. The site visit was done on October 24, 1990. Please correct the date at all places.

2. Page 2. On-site inspection of the leachate holding tank has determined that it is in poor shape and probably leaks. The concrete tank should be sealed or perhaps a liner can be installed to eliminate potential leakage. The tank repair can be undertaken when cleaned. Also the tank roof and sides should be insulated at the same time with at-least four (4) feet below ground or up to top of HDPE liner on the outside. The tank repair will allow the use of more of the tank (that portion above the HDPE liner elevation).

3. Page 3. The automatic control system of leachate recovery wells should be checked and repaired through the general operation and maintenance activities at this site. This type of activities may be included in a general electrical/mechanical subcontract for this site.

4. Page 4. Once the leachate holding tank is repaired and insulated the freezing problem will be less severe. The URS should consider installing a oil type radiant space heater with thermostat set at 40-45 degrees, this will keep the entire tank above freezing thus eliminating freeze and thaw damage.

5. Page 6. According to the historical records the leachate was pumped as follows:

Period	Quantity (Gallons)	Contractor
1988	391,000	Sevenson
8/88 to 11/88	14,912	Frontier Chemical
8/89	15,000(approx)	Frontier Chemical
5/90 to 6/90	52,144	Environmental Prod.

→ To be checked.

It appears that the total volume of leachate to be pumped out from site to lower the leachate elevations to 264' may be close to 6 million gallons. But the time frame as suggested by the URS does not seems to be realistic. See number 15 below.

6. Page 7. The long-term pumping rates as estimated in this proposal are significantly different then the similar estimates done in past studies. The cap as designed and constructed, is not the the current state-of-the-art type (i.e. HDPE liner and clay layer underneath). Instead, the sand layer installed under the HDPE liner at the PAS site will not contribute to the cap's ability to prevent precipitation and snow melt from entering the landfill. With this in mind, the URS should re-evaluate their assumption that infiltration through the cap is insignificant. Perhaps, in long term, reconstruction of the cap should be considered with the intent to reduce the leachate production.

7. Page 8. It appears that in short-term to lower the leachate elevation within containment cell, as well as in long-term for continued treatment and disposal of leachate, an on-site alternative is more economical. It is suggested that an emergency pumping at the rates as indicated in the comments for interim plan should be done. In the mean time a rental on-site high capacity unit should be operated for about one year. The data generated during this period should be used for sizing of a long-term on-site treatment plant. Also the past studies be used for the design alternatives.

8. Page 9. The sizing of an on-site treatment unit should be done on the basis of the most economical capitalized cost for the life of the project.

9. Page 11. The proposed additional on-site benchmark should not be on the landfill. The electrical panel wall as suggested by URS is on the landfill and therefore, unacceptable.

10. Page 12. After one time bush-hog the site should be mowed at a regular interval. Also the foliage should be trimmed back up to five (5) feet from fence. If possible, the fertilizer application should be limited to twice a year.

11. Page 15. The site visit was done on October 24, 1990.

12. Page 16. Item 7; Complete the sentence "due to previous days rains."

13. Page 17. Item 16; What are sun boots?

14. Appendix D. Page I-2; Date of observation should be included in the table. Also the summary should be updated to include latest data. Enclosed is a copy of groundwater elevation data from 4/89 thru 12/90 (see attachment 1).

15. Groundwater Volumes and Flow Calculations. The URS's estimates as submitted now are significantly different then their past estimates as per RI/FS August 1985, and Evaluation of Treatment Alternatives October 1985 (for additional comments, see attachment 2). Which estimate should be adopted and why?

16. Appendix F. See comment # 7.

17. Appendix I. The area between the pavement in front of storage shed and the access road be square off for ease of snow plowing (see attached drawing).

If you have any questions, please call me at (518)457-0927.

Sincerely,

Ashok K. Gupta, P.E.
Environmental Engineer II
Operation and Maintenance Section
Div. of Hazardous Waste Remediation

attachments

cc: R. Lupe
G. Rider

New York State Department of Environmental Conservation

MEMORANDUM

TO: A.K. Gupta, O&M Section, BCS
FROM: Philip G. Waite, O&M Section, BCS
SUBJECT: P.A.S. Site No. 7-38-001
DATE: December 13, 1990

Philip G. Waite

I have reviewed the report from URS, dated November 1990, concerning the evaluations of the leachate collection system and containment cell cap. I also reviewed the interim plan from URS, dated November 26, 1990, concerning lowering the leachate level. The following are my thoughts and comments as they relate to these reports and as they relate to the leachate quantity estimates and leachate treatment options (offsite vs. onsite):

1. On-site inspection of the leachate holding tank has determined that it is in poor shape and probably leaks. The concrete tank should first be sealed or perhaps a liner can be installed to eliminate potential leakage. This would also allow the use of more of the tank (that portion above the HDPE cap liner elevation).

   In a longer term pumping scenario, I recommend construction of a secondary containment pad and the installation of additional holding tanks with a combined capacity of at least 50,000 gallons. The larger capacity will reduce the frequency of offsite transport and thus costs.

2. With the immediate need to lower the leachate levels, it would seem to me that all four pumping stations should be utilized to lower the level as fast as possible in the interim plan. URS is recommending using only three for the first four week period.

3. With your observation that the cap design may allow high leachate elevations under the HDPE liner to flow over the slurry wall through the sand layer, the down gradient slope face between the slurry wall and White Creek should be closely inspected for evidence of any seeps.

4. I agree with your comments that the cap, as designed and constructed, is not the current state-of-the-art required by EPA (ie. HDPE liner and clay layer underneath). Instead, the sand layer installed under the HDPE liner at the P.A.S. site will not contribute to the cap's ability to prevent precipitation and snow melt from entering the landfill. With this in mind, I agree with you that URS should reevaluate their assumption that infiltration through the cap is insignificant. Perhaps, in the long term, reconstruction of the cap should be considered with the intent to reduce the leachate production.

5. I believe the long term option for leachate handling at this site should be an on-site treatment and discharge to White Creek or the local sewer treatment plant. Long term offsite disposal costs make this option not fiscally desirable.

cc: G. Rider

New York State Department of Environmental Conservation

MEMORANDUM

TO: A. K. Gupta, Operation & Maintenance Section
FROM: John Spellman, Operation & Maintenance Section
SUBJECT: Pollution Abatement Services - Comments on Consultant's Draft Evaluation
DATE: DECEMBER 14, 1990

As you requested, I have read URS Consultant's Draft Report and Interim Plan proposal concerning leachate at the PAS Site.

I concur with URS in that the objective at this site is to contain contamination by keeping a higher head on the exterior side of the slurry wall. To achieve this the leachate needs to be removed from inside the wall and appropriately disposed of.

After debating the advantages and disadvantages of off-site disposal, I would recommend an on-site treatment system. Considering the enormous volume involved, economies-of-scale is going to favor on-site treatment. I would further recommend treated discharge to groundwater as this would raise water levels outside the wall, thus enhancing an inward gradient.

COMMENTS ON TASK 2 AND TASK 3 REPORT:

1. Page 6. How did Sevenson remove the 391,000 gallons? If they trucked it off-site, was there any opposition to the trucks by local residents? If so, you should reconsider off-site removal. I think a truck route plan with a citizen participation specialist contact will be required for 4 to 5 trucks daily, similar to the Black and Bergholtz Creek project.

2. Page 8. Discharge treated leachate to groundwater if possible.

3. Page 9. "Daily Operator Attention" - I disagree. If on-site treatment is designed right, plant can run continuously at lower gpm (say, less than 40 gpm) without attention for probably two weeks (I'm thinking of the GE sites) or batch at higher gpm with an operator once or twice a week. The holding tank makes it convenient for batch, but with a low-flow continuous mode, pipe size and equipment can be down-scaled.

4. Page 17. What are sun boots?!

5. Appendix B. The force main at the tank is usually below water, at an elevation of 278.5. It looks like the pumping wells are at elevation 260's, so if a stone becomes lodged in the check valves, a flood and serious release could result. I would suggest raising the force main above water level. Heat tracing the exposed should not be a problem since tracing is proposed for the bubbler. Piping

6. Appendix E. A 24,000g tank is a relatively large tank. I question whether this size tank would be necessary for the proposed flow

rate (50 gpm). For comparison, at Love Canal the equalization tank is 6,000g for a 150 gpm flow rate.

7. Air stripper balance. If 20,000 gpd is going into clarifier, then 20,000 gpd is coming out. Also, 84 lb/day of solids is collecting on the carbon bed.

8. Appendix E. Total Suspended Solids appear relatively high for the leachate. The use of sand filters ~~should~~ has been evaluated?

9. Appendix E. An optional flow rate should be determined if on-site treatment is chosen. The reason for choosing 5 gpm and 50 gpm should be qualified. I realize these are just preliminary calculations

10. Appendix F. I've read where leachate disposal can cost $1 to $2 per gallon.

COMMENTS ON INTERIM PLAN

1. Because the tank volume (24,000g) is the same as the proposed transfer rate (20,000 gpd), then there can be no down-time on either the pumps or the hauling. If the pumps fail hauling will be stopped for the same time as the failure period. Similarly if hauling is held up then pumping will have to stop.

2. The Task 2 and Task 3 report indicated 1 to 3 million gallons needed to be removed before an inward gradient would develop. This plan suggests an inward gradient would develop after 400,000 gallons. I tend to believe the report.

- TOC looks high. If activated carbon is employed, you'll probably ~~need~~ break through rapidly

- Keep me posted. I'd like to know what course of action is taken. If a moveable treatment system is used let me know - I've got 400,000g's of leachate elsewhere!

John

URS
AN INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATION

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November 30, 1990

Mr. A.K. Gupta, P.E.
Bureau of Western Remedial Action
Division of Hazardous Waste Remediation
NYS Department of Environmental Conservation
50 Wolf Road
Albany, NY 12233-7010

RE: PAS SITE O&M - W.A. D002340-8
Tasks 2 and 3 Report and Revised Analytical Program

Dear Mr. Gupta:

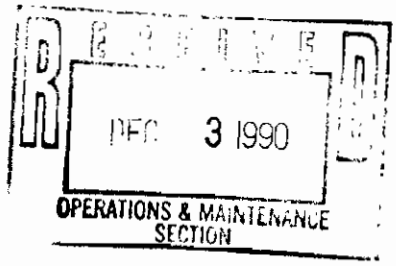
Enclosed please find one copy of the Draft Report for Tasks 2 (Leachate System Evaluation) and 3 (Containment Cell Evaluation) for the above referenced work assignment. Also included is a copy of the Revised Analytical program provided as an addendum to the previously approved Work Plan.

If you have any questions of comments on the enclosed material, please contact me.

Sincerely,

URS CONSULTANTS, INC.

Dharmarajan R. Iyer, Ph.D.
Project Manager



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cc. P. David Smith - NYSDEC (5 copies)
File 35236.00 (1000)

15 (12-75)

New York State Department of Environmental Conservation

MEMORANDUM

TO: Gerald Rider, O&M Section
FROM: Raymond Lupe, Chief, Central Projects Section, BCRA, DHWR
SUBJECT: Review of URS "Interim Plan to Lower Leachate Levels"

DATE: DEC 21 1990

I have had my staff review the "Interim Plan" submitted by URS. While it is agreed by all that an inward gradient across the slurry wall at PAS is necessary, we strongly feel that the volume of leachate to be removed in the time frame proposed is not feasible.

My staff agrees that the removal of leachate from the containment cell should begin as soon as possible at a realistic rate. This should be done while an on-site treatment system is being implemented. Mr. Edwards agrees with Mr. Gupta's proposal that a removal rate of approximately 120,000 gallons per year should maintain leachate levels within the cell while an on-site system is designed. I feel that regularly scheduled leachate removal and monitoring of the system's response to this removal will provide us with more accurate information than the estimates contained within the "Interim Plan". This approach should not effect the off-site study.

A detailed point by point technical review of the Interim Plan can be supplied by my staff along with our estimates of pumping and recharge rates if you feel it is required at this time. Please keep me advised of what action you intend concerning this "Interim Plan". As always, my staff appreciates the opportunity to work with you in creating an efficient O&M program for the PAS site. If further assistance in needed please contact myself or Bob Edwards at 7-5677.

cc: A. Rockmore
S. Hammond
A. Gupta
R. Edwards

New York State Department of Environmental Conservation

MEMORANDUM

TO: Distribution List Below
FROM: A.K. Gupta, Environmental Engineer 2, Operation & Maintenance Section AKG
SUBJECT: PAS Site (O&M) Draft Report Task 2 & 3 Appendix D
DATE: DEC 07 1990

Enclosed please find a darker copy of certain portions (hand written) of Appendix D of the draft report on Task 2 & 3 of Pollution Abatement Services site. These pages were illegible in the draft report sent to you on December 6, 1990. Please replace these pages in your copy of draft report.

If you have any questions, please call me at 457-0927.

Enclosure

DISTRIBUTION:

C. Branagh - Region 7
R. Lupe
P. Waite
J. Strang
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cc: G. Rider

a:pas2&3dr:AKG:et

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December 6, 1990

Mr. A. K. Gupta, P.E., Project Manager
Bureau of Western Remedial Action
Division of Hazardous Waste Remediation
NYS Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-7010

RE: PAS SITE O&M - W.A. D002340-8
DRAFT REPORT TASK 2 AND 3 - APPENDIX D

Dear Mr. Gupta:

Pursuant to your conversation today with Dr. Iyer, enclosed please find six (6) sets of darker copies of certain portions (hand written) of Appendix D, per your request.

Please do not hesitate to contact us if we may be of further assistance to you.

Very truly yours,

URS CONSULTANTS, INC.

Yvonne M. Sava

Yvonne M. Sava
Project Secretary

Enc.

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REF. PAGE

THE PURPOSE OF THIS CALCULATION PACKAGE IS TO CALCULATE THE STEADY STATE WITHDRAWAL RATE THAT WOULD ENSURE THAT THE CONTAMINANTS FROM WITHIN THE SLURRY WALL ENCLOSURE DO NOT MIGRATE OFF-SITE. IN ORDER TO DO THIS, SEVERAL ASSUMPTIONS WERE UTILIZED:

1) GEOLOGY

THE GEOLOGY OF THE SITE WAS ASSUMED TO BE AS FOLLOWS: THE UPPER AQUIFER WITHIN THE ENCLOSURE WAS ASSUMED TO HAVE A HYDR. CONDUCTIVITY OF 0.3 FT/DAY. IT'S BOTTOM WAS ASSUMED TO BE AT THE ELEVATION OF 258 FT. THE UNDERLYING LODGMENT TILL WAS ASSUMED TO BE A SEMI-IMPERVIOUS FORMATION WITH THE PERMEABILITY OF 0.03 FT/DAY AND THICKNESS OF 20 FT. THE BEDROCK UNDERNEATH THE TILL WAS ASSUMED TO BE AN AQUIFER
(FOR REF. SEE FINAL REPORT JAN 84, CROSS SECTION F, P 33)

2) SHAPE

THE SITE IS ROUGHLY 8.5 ACRES. IT WAS ASSUMED, THAT THE SHAPE CAN BE APPROXIMATED BY A RECTANGLE, IT'S WIDTH BEING THE LENGTH OF THE TRENCH CONNECTING WELLS W-1, W-2, W-3 (ABOUT 750 FT). THE LENGTH OF THE RECTANGLE IS

$$L = \frac{A}{\text{WIDTH}} = \frac{8.5 \times 43{,}560}{750} = 493.7 \text{ FT}$$

SAY 500 FT

SEE FIG ON PAGE 1]

REF. PAGE

3) COLLECTION TRENCHES

THERE ARE 2 COLLECTION TRENCHES ON SITE. IT WAS ASSUMED, THAT BOTH OF THEM SPAN THE ENTIRE WIDTH OF THE RECTANGLE THAT APPROXIMATES THE SHAPE OF THE SLURRY WALL ENCLOSURE. THE TRENCH CONNECTING WELLS W-1, W-2, W-3 IS SITUATED NEXT TO THE NORTHERN SLURRY WALL, PARALLEL TO IT. THE TRENCH FOR THE WELL W-4 IS SITUATED IN THE MIDDLE OF THE SITE, PARALLEL TO THE FIRST TRENCH

4) SLURRY WALL

APPROXIMATE FLOW THROUGH THE SLURRY WALL

$$Q = K I A$$

A - AREA OF SLURRY WALL
I - GRADIENT ACCROSS THE SLURRY WALL
K - HYDR. COND. OF THE SLURRY WALL

- $K = 1 \times 10^{-7}$ CM/S $= 2.8 \times 10^{-4}$ FT/DAY (ASSUMED)
- $I = \frac{\Delta h}{\text{THICKNESS}}$

$\Delta h_{MAX} = 271 - 260 = 11$ FT WHERE 271 FT IS THE AVERAGE ELEV. OUTSIDE THE SLURRY WALL AND 260 IS THE LOWEST AVG. ELEV MAINAINED IN THE COLLECTION DITCHES (ASSUMED, SEE P 10)

THICKNESS = 3 FT

- $A = P \times H$

P - PERIMETER OF SITE (LENGTH OF SLURRY WALL)
H - HEIGHT OF SLURRY WALL

$P = 2 \times (750 + 500) = 2500$ FT
$H = 13$ FT

$A = 2500 \times 13 = 32,500$ FT^2

$Q = 2.8 \times 10^{-4} \times \frac{11}{3} \times 32,500$

$Q = 33$ FT^3/DAY

5) CAPPING
A CAP IS ASSUMED TO BE IMPERVIOUS

6) WATER ELEVATIONS
THE WATER ELEVATION WITHIN THE COLLECTION TRENCH "A" WAS ASSUMED BASED ON THE "ON" AND "OFF" ELEVATIONS FOR PUMPS IN WELLS W-1, W-2, W-3
THE WATER LEVEL IN THE COLLECTION TRENCH "B" WASS ASSUMED BASED ON THE ELEVATIONS OF "ON" AND "OFF" FOR PUMP IN WELL W-4

WELL	"ON" ELEV [FT]	"OFF" ELEV [FT]
W-1	263.7	257.9
W-2	261.6	255.8
W-3	270.7	265.1
W-4	263.0	257.7

SEE FIG ON PAGE 16

WATER ELEVATION WITHIN THE BEDROCK AQUIFER WAS ASSUMED BASED ON THE PIEZOMETRIC LEVELS IN NEARBY WELLS (SEE PAGES 1H, 1I)

SINCE THE LEVELS DIFFER FOR BEDROCK WELLS, IT WAS DECIDED TO PERFORM CALCULATIONS FOR 2 CASES: 264 FT CORRESPONDING TO WELL LR6 AND 268 FT CORRESPONDING TO WELL LR 3

CALCULATIONS WERE PERFORMED FOR 2 SETS OF ELEVATIONS IN TRENCHES AND IN BEDROCK AQUIFER

CASE #	ELEV IN TRENCH "A" [FT]	ELEV IN TRENCH "B" [FT]	ELEV. IN BEDROCK AQUIFER [FT]
1	260	260	264
2	260	262	264
3	260	260	268
4	260	262	268

NOTE: ELEVATIONS IN TRENCHES ASSUMED BASED ON AVERAGES OF "ON" AND "OFF" LEVELS FOR PUMPS (SEE PAGE 1G)

REF. PAGE

7) APPROACH

THE FOLLOWING APPROACH WASS ASSUMED

- THE WATER LEVEL IN THE COLLECTION TRENCHES WAS ASSUMED CONSTANT
- THE FLOW INTO THE ENCLOSURE WAS ASSUME TO COME FROM THE BEDROCK AQUIFER, THROUGH THE SEMI-IMPERVIOUS LAYER. FOR THAT CASE, A 1-D EQUATION CAN APPROXIMATE THE FLOW (FOR RECHARGE $N = 0$)

$$\frac{d^2h}{dx^2} - \frac{h - \phi_0}{\lambda^2} = 0$$

(HYDR. OF GROUNDWATER, BEAR 1979, P 183)

FOR DEFINITION OF PARAMETERS SEE P 3

- THE EQUATION WAS SOLVED USING THE WATER ELEV. IN TRENCHES AND THE LOCATION OF SLURRY WALL AS BOUNDRY CONDITIONS (SLURRY WALL WAS ASSUMED IMPERVIOUS FOR THIS PURPOSE)

- THE ASSUMPTION OF THE IMPERVIOUS SLURRY WALL WAS VERIFIED BY COMPARING FLOW THROUGH THE SLURRY WALL FROM PAGE 1C TO THE RESULTING FLOW OBTAINED FROM SOLVING THE EQUATION. IT WAS DETERMINED THAT EVEN THE VERY CONSERVATIVELY EVALUATED FLOW THROUGH THE SLURRY WALL CAN BE NEGLECTED SINCE IT CONSTITUTES LESS THAN 10% OF THE FLOW OBTAINED FROM SOLVING EQ.

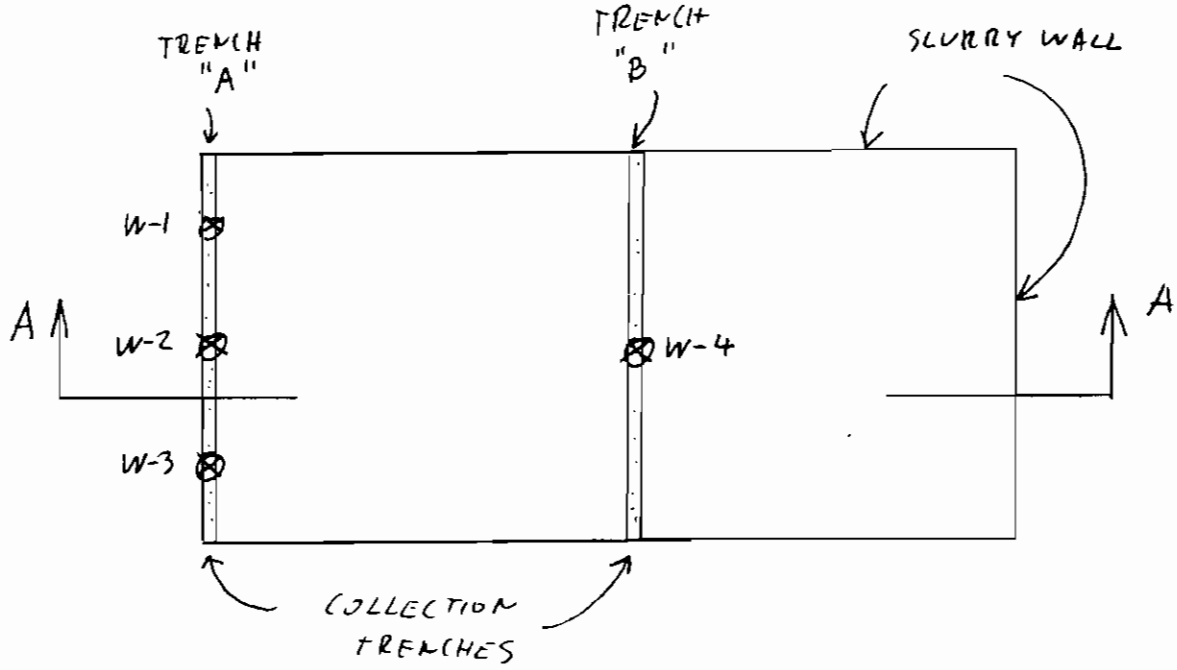
8) SUMMARY

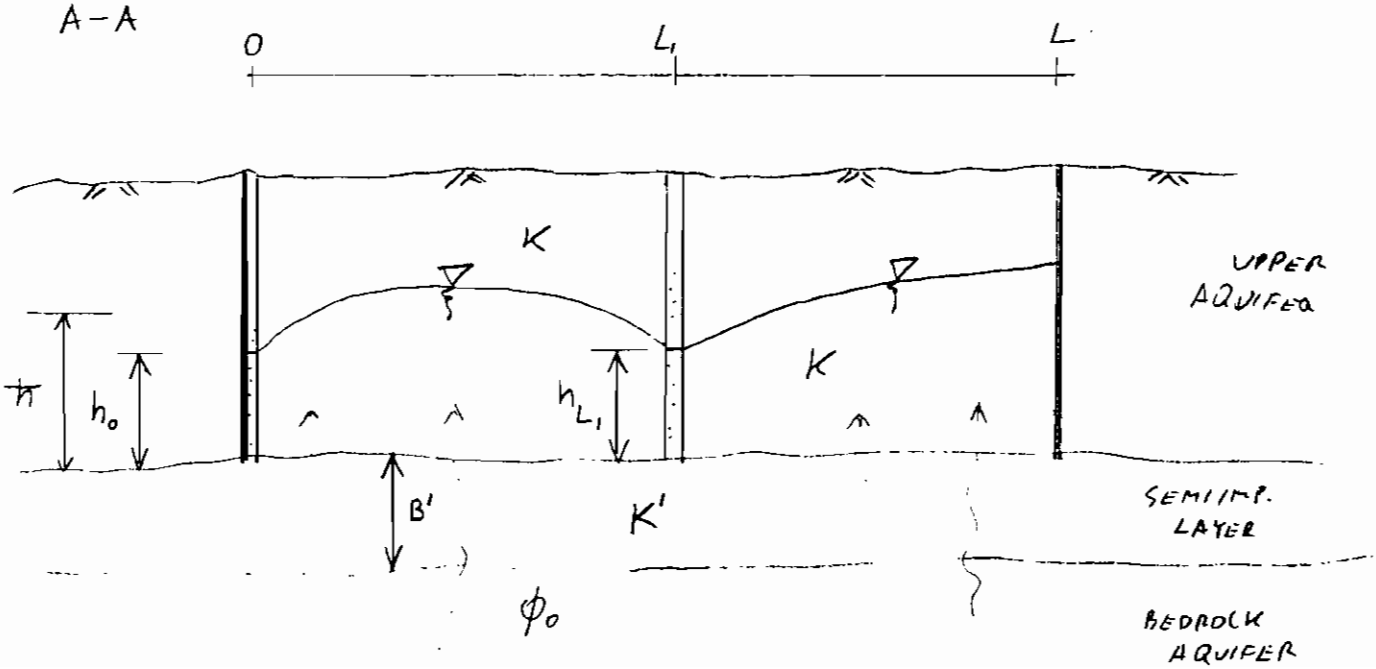
REF. PAGE

THE FOLLOWING STEADY STATE WITHDRAWAL RATES WERE DETERMINED

CASE #	AVG. WATER ELEV. IN WELLS 1,2,3 [FT]	AVG WATER ELEV IN WELL 4 [FT]	WATER ELEV. IN BEDROCK AQUIFER [FT]	STEADY STATE WITHDRAWAL RATE [GPM]
1	260	260	264	2.0
2	260	262	264	1.4
3	260	260	268	4.9
4	260	262	268	4.2

FOR CALCULATIONS SEE PAGES 2 UP


TRENCH "A"
TRENCH "B"
SLURRY WALL
W-1
W-2
W-3
W-4
A
A
COLLECTION TRENCHES


A-A
0
L_1
L
K
K
UPPER AQUIFER
H
h_o
h_{L_1}
B'
K'
SEMIIMP. LAYER
ϕ_o
BEDROCK AQUIFER

ϕ_0 - HYDR HEAD IN THE BEDROCK AQUIFER
h_0 - HYDR HEAD KEPT IN THE COLLECTION TRENCH FOR WELLS W-1, W-2, W-3
h_{L_1} - HYDR. HEAD KEPT IN THE COLLECTION TRENCH FOR WELL W-4
K - HYDR CONDUCTIVITY OF THE UPPER AQUIFER
K' - HYDR. CONDUCTIVITY OF THE SEMIIMPERVIOUS LAYER
B' - THICKNESS OF THE SEMIIMPERVIOUS LAYER
L - LENGTH OF THE SITE
L_1 - HALF OF THE SITE'S LENGTH
$\bar{h}$ - AVERAGE WATER ELEVATION ACROSS THE SITE
B_s - WIDTH OF THE SITE

A FLOW WITHIN THE ENCLOSURE CAN BE APPROXIMATED BY A 1-D EQUATION

$$\frac{d^2h}{dx^2} - \frac{h-\phi_0}{\lambda^2} = 0$$

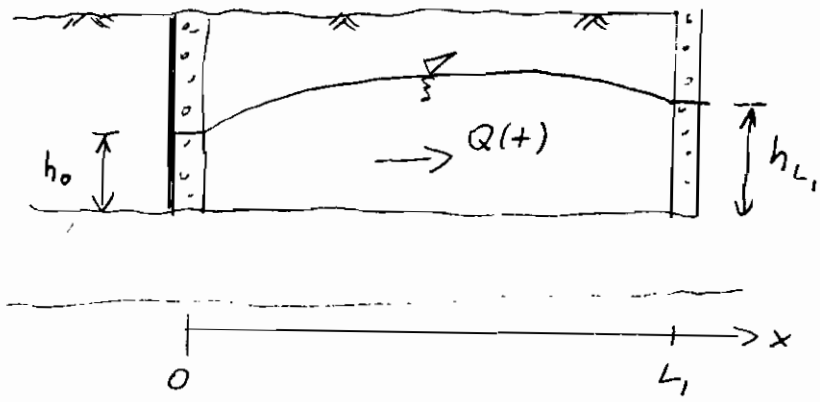
WHERE : $\lambda^2 = \frac{B'}{K'} K \bar{h}$, $\bar{h} = \left[\phi_0 + (h_0 + h_L)/2\right]/2$

THE SOLUTION HAS A FORM

$$h = \phi_0 + C_1 e^{-\frac{x}{\lambda}} + C_2 e^{\frac{x}{\lambda}}$$

SITE CAN BE DIVIDED INTO 2 REGIONS : FROM $x=0$ TO $x=L_1$, AND FROM $x=L_1$ TO $x=L$

(1)



$$h = \phi_0 + C_1 e^{-\frac{x}{\lambda}} + C_2 e^{\frac{x}{\lambda}}$$

B.C. $h(x=0) = h_0$ (1)
$h(x=L_1) = h_{L_1}$ (2)

$$\begin{cases} \phi_0 + C_1 + C_2 = h_0 & (1) \\ \phi_0 + C_1 e^{-L_1/\lambda} + C_2 e^{L_1/\lambda} = h_{L_1} & (2) \end{cases}$$

$$\begin{cases} C_1 + C_2 = h_0 - \phi_0 \\ e^{-L_1/\lambda} C_1 + e^{L_1/\lambda} C_2 = h_{L_1} - \phi_0 \end{cases}$$

$$W = \begin{vmatrix} 1 & 1 \\ e^{-L_1/\lambda} & e^{L_1/\lambda} \end{vmatrix} = e^{L_1/\lambda} - e^{-L_1/\lambda}$$

$$W_{C_1} = \begin{vmatrix} h_0 - \phi_0 & 1 \\ h_{L_1} - \phi_0 & e^{L_1/\lambda} \end{vmatrix} = (h_0 - \phi_0) e^{L_1/\lambda} - (h_{L_1} - \phi_0)$$

$$W_{C_2} = \begin{vmatrix} 1 & h_0 - \phi_0 \\ e^{-L_1/\lambda} & h_{L_1} - \phi_0 \end{vmatrix} = (h_{L_1} - \phi_0) - (h_0 - \phi_0) e^{-L_1/\lambda}$$

$$C_1 = \frac{(h_o - \phi_o)\, e^{L_1/\lambda} - (h_{L_1} - \phi_o)}{e^{L_1/\lambda} - e^{-L_1/\lambda}}$$

$$C_2 = \frac{(h_{L_1} - \phi_o) - (h_o - \phi_o)\, e^{-L_1/\lambda}}{e^{L_1/\lambda} - e^{-L_1/\lambda}}$$

$$h = \phi_o + \left[\frac{(h_o - \phi_o) e^{+L_1/\lambda} - (h_{L_1} - \phi_o)}{e^{L_1/\lambda} - e^{-L_1/\lambda}} \right] e^{-\frac{x}{\lambda}} +$$

$$+ \left[\frac{(h_{L_1} - \phi_o) - (h_o - \phi_o)\, e^{-L_1/\lambda}}{e^{L_1/\lambda} - e^{-L_1/\lambda}} \right] e^{\frac{x}{\lambda}}$$

$$Q = -T \frac{dh}{dx} = \frac{T}{\lambda} \left[\frac{(h_o - \phi_o) e^{+L_1/\lambda} - (h_{L_1} - \phi_o)}{e^{L_1/\lambda} - e^{-L_1/\lambda}} \right] e^{-\frac{x}{\lambda}} +$$

$$- \frac{T}{\lambda} \left[\frac{(h_{L_1} - \phi_o) - (h_o - \phi_o)\, e^{-L_1/\lambda}}{e^{L_1/\lambda} - e^{-L_1/\lambda}} \right] e^{\frac{x}{\lambda}}$$

$$Q(A) = \frac{T}{\lambda (e^{L_1/\lambda} - e^{-L_1/\lambda})} \left\{ \left[(h_o - \phi_o) e^{+L_1/\lambda} - (h_{L_1} - \phi_o) \right] e^{-\frac{x}{\lambda}} + \right.$$

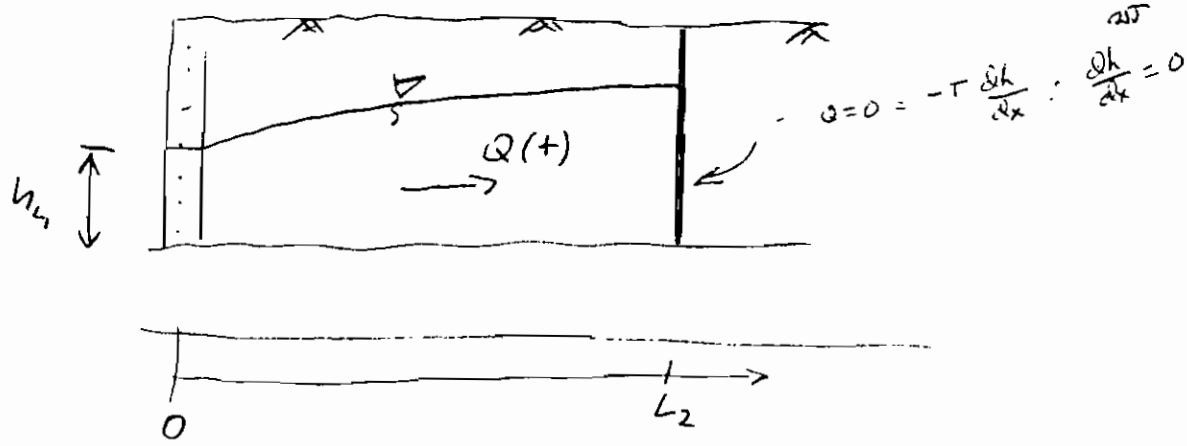
$$\left. - \left[(h_{L_1} - \phi_o) - (h_o - \phi_o)\, e^{-L_1/\lambda} \right] e^{\frac{x}{\lambda}} \right\}$$

$$Q_{3\text{-}D} = Q \times B_s$$

B = WIDTH OF [illegible]

(2)

REF. PAGE



$Q=0 = -T\frac{\partial h}{\partial x} \therefore \frac{\partial h}{\partial x} = 0$

$$h = \phi_0 + C_1 e^{-\frac{x}{\lambda}} + C_2 e^{\frac{x}{\lambda}}$$

B.C. $h(0) = h_{L_1}$ (1)

$$\frac{dh}{dx}(L_2) = 0 \quad (2)$$

$$\begin{cases} \phi_0 + C_1 + C_2 = h_{L_1} & (1) \\ -\frac{C_1}{\lambda} e^{-L_2/\lambda} + \frac{C_2}{\lambda} e^{L_2/\lambda} = 0 & (2) \end{cases}$$

$$\begin{cases} C_1 + C_2 = h_{L_1} - \phi_0 \\ -e^{-L_2/\lambda} C_1 + e^{L_2/\lambda} C_2 = 0 \end{cases}$$

$$W = \begin{vmatrix} 1 & 1 \\ -e^{-L_2/\lambda} & e^{L_2/\lambda} \end{vmatrix} = e^{L_2/\lambda} + e^{-L_2/\lambda}$$

$$W_1 = \begin{vmatrix} h_{L_1} - \phi_0 & 1 \\ 0 & e^{L_2/\lambda} \end{vmatrix} = (h_{L_1} - \phi_0) e^{L_2/\lambda}$$

$$W_{C_2} = \begin{vmatrix} 1 & h_{L_1} - \phi_0 \\ -e^{-L_2/\lambda} & 0 \end{vmatrix} = (h_{L_1} - \phi_0) e^{-L_2/\lambda}$$

$$C_1 = \frac{(h_{L_1} - \phi_0) e^{L_2/\lambda}}{e^{L_2/\lambda} + e^{-L_2/\lambda}} \quad , \quad C_2 = \frac{(h_{L_1} - \phi_0) e^{-L_2/\lambda}}{e^{L_2/\lambda} + e^{-L_2/\lambda}}$$

$$h = \phi_0 + \frac{(h_{L_1} - \phi_0) e^{L_2/\lambda}}{e^{L_2/\lambda} + e^{-L_2/\lambda}} e^{-\frac{x}{\lambda}} + \frac{(h_{L_1} - \phi_0) e^{-L_2/\lambda}}{e^{L_2/\lambda} + e^{-L_2/\lambda}} e^{\frac{x}{\lambda}}$$

$$Q(x) = -T \frac{dh}{dx} = -T \left\{ \left[-\frac{1}{\lambda} \frac{(h_{L_1} - \phi_0) e^{L_2/\lambda}}{e^{L_2/\lambda} + e^{-L_2/\lambda}} \right] e^{-\frac{x}{\lambda}} + \right.$$

$$\left. + \left[\frac{1}{\lambda} \frac{(h_{L_1} - \phi_0) e^{-L_2/\lambda}}{e^{L_2/\lambda} + e^{-L_2/\lambda}} \right] e^{\frac{x}{\lambda}} \right\}$$

$$Q(x) = -\frac{T(h_{L_1} - \phi_0)}{\lambda (e^{L_2/\lambda} + e^{-L_2/\lambda})} \left(e^{\frac{x - L_2}{\lambda}} - e^{\frac{L_2 - x}{\lambda}} \right)$$

$$Q_{3\text{-}D} = Q \cdot B_S$$

B_S - WIDTH OF THE SITE

ASSUME FOLLOWING VALUES OF THE DATA: REF. PAGE

$K = 0.3$ FT/D $\qquad B_s = 750$ FT
$K' = 0.03$ FT/D
$B' = 20$ FT
$L = 500$ FT
$L_1 = L_2 = L/2 = 250$ FT

CASE 1

$\phi_0 = 264 - 258 = 6$ FT
$h_0 = 260 - 258 = 2$ FT
$h_{L_1} = 260 - 258 = 2$ FT

$$h_1 = (2 + 6)/2 = 4 \text{ FT}$$

$$\lambda^2 = \frac{20}{0.03} \times 0.3 \times 4 \left[\frac{FT}{\frac{FT}{DAY}} \times \frac{FT}{DAY} \times FT = FT^2 \right] = 800 \text{ FT}^2$$

$$\lambda = 28.3 \text{ FT}$$

$$T = 0.3 \times 4 \left[\frac{FT}{DAY} \times FT = \frac{FT^2}{DAY} \right] = 1.2 \text{ FT}^2/\text{DAY}$$

CASE 2

$\phi_0 = 264 - 258 = 6$ FT
$h_0 = 260 - 258 = 2$ FT
$h_{L_1} = 262 - 258 = 4$ FT

$$h_1 = \left[(2 + 4)/2 + 6 \right]/2 = 4.5 \text{ FT}$$

$$T = 0.3 \times 4.5 \left[\frac{FT}{DAY} \times FT = \frac{FT^2}{DAY} \right] = 1.35 \text{ FT}^2/\text{DAY}$$

$$\lambda^2 = \frac{20}{0.03} \times 1.35 \left[\frac{FT}{\frac{FT}{DAY}} \times \frac{FT^2}{DAY} = FT^2 \right] = 800 \text{ FT}^2$$

$$\lambda = 30 \text{ FT}$$

CASE 3

$\phi_0 = 268 - 258 = 10$ FT
$h_0 = 260 - 258 = 2$ FT
$h_{L_1} = 260 - 258 = 2$ FT

$h_1 = (2+10)/2 = 6$ FT

$$T = 0.3 \times 6 \left[\frac{FT}{DAY} \times FT = \frac{FT^2}{DAY} \right] = 1.8 \ FT^2/DAY$$

$$\lambda^2 = \frac{20}{0.03} \times 1.8 \left[\frac{FT}{\frac{FT}{DAY}} \times \frac{FT^2}{DAY} = FT^2 \right] = 1200 \ FT^2$$

$\lambda = 34.6$ FT

CASE 4

$\phi_0 = 268 - 258 = 10$ FT
$h_0 = 260 - 258 = 2$ FT
$h_{L_1} = 262 - 258 = 4$ FT

$h_1 = [(2+4)/2 + 10]/2 = 6.5$ FT

$$T = 0.3 \times 6.5 \left[\frac{FT}{DAY} \times FT = FT^2/DAY \right] = 1.95 \ FT^2/DAY$$

$$\lambda^2 = \frac{20}{0.03} \times 1.95 \left[\frac{FT}{\frac{FT}{DAY}} \times \frac{FT^2}{DAY} = FT^2 \right] = 1300 \ FT^2$$

$\lambda = 36.1$ FT

New York State Department of Environmental Conservation

FILE COPY

Originator AKG 12/6/90

Reviewer GJR 12/6/90

Reviewer _____

MEMORANDUM

TO: Ray Lupe, Chief, Central Projects Section
FROM: Gerald J. Rider, Jr., Chief, Operation & Maintenance Section
SUBJECT: PAS Site O&M - Interim Plan to Lower Leachate Levels
DATE: DEC 6 1990

Enclosed is a copy of URS's submittals of the Interim Plan to lower the leachate levels within the slurry wall and thereby develop an inward gradient all around the contained area.

As you will notice this plan calls for pumping 1 to 3 million gallons of leachate in a short term to bring the leachate to a desirable level. This is a very expensive proposal for an off-site disposal. It is our intent to adjust the schedule for evaluation of on-site treatments. We believe that since the levels have been constant for one year that, at a minimum, pumping should be performed to maintain that level while alternatives are explored and implemented, e.g., on-site treatment. I would appreciate your comments relative to this approach. Will this approach have any adverse effect on the off-site study?

We believe a portable unit or an on-site plant can be made operative within 1 to 2 years, respectively.

I would appreciate your comments and suggestions in this matter by COB December 18, 1990.

Attachment

cc: w/att. - C. Branagh
w/o att. - A. Rockmore

bcc: w/att for comments P. Waite
A. Gupta
J. Strang
J. Spellman
R. Lee

a:pasleach:AKG:GR:et

URS
AN INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATION

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WASHINGTON, D.C.

FAXED November 26, 1990

November 26, 1990

Mr. A. K. Gupta, P.E., Project Manager
Bureau of Western Remedial Action
Division of Hazardous Waste Remediation
NYS Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-7010

RE: PAS SITE O&M - W.A. D002340-8
INTERIM PLAN TO LOWER LEACHATE LEVEL

Dear Mr. Gupta:

Enclosed is a slightly revised version of the Interim Plan, which was faxed to you last Wednesday, November 21, to lower the leachate level within the slurry wall and thereby develop an inward gradient all around the contained area. Please review this plan and provide your comments by the end of this week so that we can discuss the next course of action you may wish us to take.

Please also note that we have received only four bids as of today for the hauling and off-site disposal of leachate from the site. Most haulers contacted by us have declined to bid since all of them send their waste to one of the two facilities also bidding on this assignment and feel that they cannot compete with the cost of dealing directly with a disposal facility that can also haul wastes. URS's contract with NYSDEC requires that we obtain five (5) bids for subcontract services. We, therefore, cannot yet select a subcontractor for leachate management unless NYSDEC authorizes us to do so with only four bids. Your assistance in this regard would help expedite this program and meet an already tight schedule.

Sincerely,

URS CONSULTANTS, INC.

Dharmarajan R. Iyer, Ph.D
Project Manager

DRI/ys
Enc.

11-26-90.DEC
35236

cc: C. Hurley - URS
File: 35236.00 (1000)

URS CONSULTANTS, INC. 11-26-90

PAS SITE O&M
INTERIM PLAN
TO LOWER LEACHATE LEVEL
WITHIN THE SLURRY WALL

Introduction

URS is currently providing operation and maintenance (O&M) of the Pollution Abatement Services (PAS) site in Oswego, NY through a work assignment under the NYSDEC Standby Contract. This O&M assignment includes an assessment of the leachate collection system, which is underway. However, data obtained over the past year by the NYSDEC from groundwater level measurements in wells on either side of the slurry wall indicate substantially higher water levels inside the landfill compared to levels outside the slurry wall downgradient of the site. Consequently, there is an immediate need to reduce groundwater levels within the slurry wall in order to release the pressure on the containment cell and make the groundwater flow inward at all locations of the slurry wall.

Additionally, a more long term need is to accurately define the amount of groundwater that must be collected and treated from within the slurry wall boundaries to maintain the inward flow gradients to the site once the site has been drained to the desired levels in the inner monitoring wells. An interim plan to accomplish both objectives is presented below.

Rationale

In order to lower the water table within the slurry wall below the levels outside, preliminary calculations indicate that 1 to 3 million gallons of leachate has to be pumped from the leachate collection wells, depending on the desired elevations in the wells. The long term pumping

rate is estimated to range from 2,000 to 7,000 gallons per day (gpd). These estimates are based on limited data available for the site, including hydrogeologic information in previous reports, leachate pumping in 1987 (291,000 gallons) and 1990 (52,000 gallons), and recent groundwater level measurements. The assumptions and calculations used to estimate the leachate withdrawal quantities will be provided in the letter report for Task 2 of this work assignment.

We recommend a phased approach consisting of an initial pumping of leachate, followed by monitoring of the water levels in the wells. This would allow us to immediately lower the water level within the downgradient slurry wall and then re-establish the required pumping rates through data evaluation or a more detailed groundwater flow simulation. The option of off-site disposal versus onsite treatment can then be further evaluated to minimize the total cost of leachate management.

Pumping Program

- Pump leachate from leachate collection wells LCW-1,2 and 3 for four weeks at a rate of 20,000 gallons per week day into the leachate holding tank.

- Remove 20,000 gallons/weekday of leachate offsite for one month. A total of 400,000 gallons will therefore be hauled offsite. Approximately 20% to 30% of this will come from the leachate collection trenches, with the remaining from the formation around the trenches. Within the first few days, there should be a noticeable drop in the wells immediately adjacent to the trench.

- Monitor all water levels weekly. LCW 4 should be used as an observation well for the first four weeks to determine if the middle of the site is draining. Pumping should be stopped

when inward gradients develop or after four weeks, whichever comes first.

- After pumping is stopped, continue to monitor water levels in the wells, including the four leachate collection wells for a period of four weeks.

  Data from the leachate collection wells can be used to determine the rate at which the site will drain if pumping is continued. This will allow us to fine tune the daily leachate pumping rate necessary to attain the inward gradients. Data from the other wells will be used to determine the impact of the first month's pumping. The estimate for the long-term pumping rate can also be refined with this data.

- At the end of eight weeks, re-establish leachate pumping but pump from all 4 pumping wells, LCW-1 - 4.

- Continue monitoring all water levels weekly for 1 year to check for inward gradients during all seasons.

- Fine-tune the daily leachate pumping to the minimum necessary to just maintain the inward gradients. Vary pumping on a monthly basis at first to allow system to equilibrate.

- Develop a long-term pumping strategy and compare with onsite treatment options.

- Contingency - assumes that at end of 2 month initial period, inward gradient have formed, or are very close. Otherwise, 20,000 gpd should be drained until this occurs.

New York State Department of Environmental Conservation

MEMORANDUM

TO: Operation & Maintenance Section Staff
FROM: A.K. Gupta, Environmental Engineer 2, O&M Section AKG.
SUBJECT: Pollution Abatement Services (O&M) - Draft Report on Evaluation of Leachate Collection System and Containment Cell Cap.
DATE: DEC 06 1990

Attached is a copy of the above mentioned report received from URS Consultants.

As you will note, the leachate levels within the containment cell are higher than outside groundwater elevations at several locations. Also, included in this report is the estimate of leachate quantity within the containment cell with short-term and long-term leachate flow estimates. The report also includes on-site V/S off-site disposal alternatives. I would appreciate your comments, especially on leachate estimates and disposal alternatives by December 18, 1990.

Attachment

cc: G. Rider

a:pascell.cap:AKG:et

New York State Department of Environmental Conservation

MEMORANDUM

TO: Ray Lupe, Chief, Central Remedial Section
FROM: Gerald J. Rider, Jr., Chief, Operation & Maintenance Section
SUBJECT: PAS Site O&M: WA #D002340-8 Task 2 & 3 Evaluation of Leachate Collection System and Containment Cell Cap
DATE: DEC 06 1990

Enclosed for your information and comments, is a copy of the draft report on the above mentioned subject received from URS Consultants, Inc. If you have any comments please submit them to A. K. Gupta, of my staff, by December 18, 1990.

If you have any questions, please call me or A. K. Gupta at 7-0927.

Enclosure

cc: A. K. Gupta
C. Branagh, w/enc.

a:PAS2&3:AKG:GR:et