ENVIRONMENTAL CONSULTING & MANAGEMENT
ROUX ASSOCIATES INC

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HAZARDOUS WASTE
REMEDIATION

August 31, 1994

Mr. Charles Lin
Director, Environmental Control
National Railroad Passenger Corporation
400 North Capitol Street, N.W.
Washington, D.C. 20001

Re: Second and Third Quarter Progress Report
Interim Remedial Measures System in Area 1
Sunnyside Yard, Queens, New York

Dear Mr. Lin:

As you are aware, Roux Associates, Inc. (Roux Associates) has been retained by the National Railroad Passenger Corporation (AMTRAK) to perform regular system maintenance and performance monitoring of the Interim Remedial Measures (IRM) system in Area 1 at the Sunnyside Yard, Queens, New York (Yard). The project duration is one year as outlined in the Roux Associates March 17, 1993 Technical and Cost Proposal. As a result of the severe winter conditions (i.e., extremely cold temperatures and icy conditions) throughout the second quarter and a subsequent equipment malfunction during the third quarter, the recovery system was not operational for extended periods of time. Therefore, due to the limited operational status of the system, this report presents a summary of the performance monitoring data and analytical results for both the second and third quarterly periods (from December 9, 1993 through June 1, 1994).

On September 8, 1993, regular system operation and maintenance (O&M) and performance monitoring commenced and has continued through the period of this report. The work consisted of the following:

- twice monthly system inspection and maintenance including the large diameter filter scavenger (LDFS) and small diameter filter scavenger (SDFS) pumps;
- monthly gauging of the recovery tank and Area 1 monitoring wells (i.e., collection of water-level and separate-phase petroleum thickness measurements); and

- quarterly collection of petroleum samples from Monitoring Wells MW-17 and MW-22, and newly installed monitoring wells MW-50, and MW-54 for polychlorinated biphenyl (PCB) analysis.

At the request of AMTRAK, in addition to the scheduled quarterly sampling, petroleum samples were collected from Recovery Wells RW-1, RW-3, and MW-16 and Recovery Ring 1 for PCB analysis.

System Maintenance

The twice monthly system maintenance consisted of the following:

- visual inspection of all equipment and the recovery tank for fitness;
- removal of the SDFS and LDFS pumps to perform routine maintenance including cleaning the filters, and reinstallation of the pumps;
- adjustments to the SDFS pump levels, based upon water-level and petroleum thickness fluctuations; and
- testing and resetting the system control boards.

Gauging

Gauging of the recovery tank and Area 1 monitoring wells was performed at IRM system startup and has continued through the period of this report. Monthly gauging has indicated variations in petroleum thickness measurements, and these may be attributable to the following:

- response of the remaining petroleum accumulation to IRM system petroleum withdrawal;
- response of the petroleum accumulation to fluctuating water levels;
- response to bail-down testing (i.e., continuing petroleum accumulation within some wells) performed as part of the remedial investigation;
- variable specific gravity and viscosity of petroleum within the accumulation; and
- variable subsurface conditions (i.e., buried conduits and/or obstructions) within the areal extent of the accumulation.

Sample Collection

Monitoring wells recently installed in Area 1 (i.e., MW-50 and MW-54) during the Phase II Remedial Investigation and Addendum conducted at the Yard have been incorporated into the performance monitoring well network for the IRM system. Water-level and petroleum thickness measurements collected during the second and third quarters are presented in Table 1.

On February 16, 1994, petroleum samples were collected from recovery system wells RW-1, RW-3, and MW-16, and Recovery Ring 1 for PCB analysis to evaluate the concentrations of PCBs in the recovered petroleum. On March 7, 1994, and on June 1, 1994, petroleum samples were collected from Monitoring Wells MW-17, MW-22, MW-50, and MW-54 for PCB analysis. The analytical data for each sampling event are presented in Table 2. The results of the laboratory analyses indicated that PCB Aroclor 1260 was detected in all samples. Additionally, Aroclor 1242 was detected in Recovery Ring 1; Aroclor 1248 was detected in MW-16; and Aroclor 1254 was detected in MW-54.

A review of the above-mentioned PCB results and historical analytical data indicates that the PCB concentrations at specific sampling locations within the separate-phase petroleum accumulation have remained relatively constant (i.e., within the same order of magnitude) over time. This indicates that the PCBs do not appear to be dispersing within the separate-phase accumulation and the petroleum accumulation does not appear to be migrating.

Following the March 7, 1994 IRM system sampling event, bail down testing was performed on Area 1 monitoring wells containing separate-phase petroleum (including MW-17, MW-22, MW-60 and MW-54) as part of the remedial investigation. As a result of the bail down testing, all petroleum was removed from the monitoring wells tested. Subsequent sampling of newly accumulated petroleum in those same monitoring wells (MW-17, MW-22, MW-50, and MW-54) occurred on June 1, 1994. Results of the two sampling events (Table 2) indicate similar PCB concentrations and aroclor species at each sample location. Furthermore, historical data from monitoring wells MW-17 and MW-22 (MW-50 and MW-54 were only recently installed) is consistent with the above-mentioned observations (i.e., consistent results).

Recovery tank petroleum thickness measurements collected through June 1, 1994 indicate approximately 830 gallons of petroleum have been recovered from system startup through the third quarter.

As described in Roux Associates' March 17, 1993 Technical and Cost Proposal, continuing O&M and performance monitoring are scheduled for the next quarterly period.

If you have any questions or require additional information, please do not hesitate to call.

Sincerely,

ROUX ASSOCIATES, INC.

Harry Gregory
Project Hydrogeologist/
Project Manager

Joseph D. Duminuco
Principal Hydrogeologist

cc: R. Noonan, AMTRAK
R. Gardineer, P.E., NYSDEC
C. Villacres, NYSDEC
A. Sigona, NYSDEC
P. Gerbasi, Roux Associates, Inc.

TABLES

Table 1. Summary of Water-Level and Separate-Phase Petroleum Thickness Measurements, Sunnyside Yard, Queens, New York.

		December 23, 1993			
Well Designation	Measuring Point Elevation (ft above mean sea level)	Depth to Petroleum (ft below measuring point)	Depth to Water (ft below measuring point)	Petroleum Thickness (ft)	Ground-Water Elevation (ft relative to mean sea level)
MW-13	17.33	--	1.78	sheen	15.55
MW-17*	20.75	4.17	7.34	3.17	16.18
MW-19	21.36	--	6.72	--	14.64
MW-20*	20.33	4.02	4.48	0.46	16.25
MW-21	20.83	--	1.95	sheen	18.88
MW-22	19.44	2.99	3.13	0.14	16.43
MW-23	20.40	--	4.48	--	15.92
MW-35	19.92	--	5.02	--	14.90
MW-36*	21.25	6.14	7.13	0.99	14.99

-- No measurable product.

* Water-level elevations corrected for presence of separate phase petroleum. Correction for separate-phase petroleum assumes density of 0.874 (average specific gravity of petroleum samples collected at Yard).

Table 1. Summary of Water-Level and Separate-Phase Petroleum Thickness Measurements, Sunnyside Yard, Queens, New York.

Well Designation	Measuring Point Elevation (ft above mean sea level)	February 2, 1994			
		Depth to Petroleum (ft below measuring point)	Depth to Water (ft below measuring point)	Petroleum Thickness (ft)	Ground-Water Elevation (ft relative to mean sea level)
MW-13	17.33	--	1.67	--	15.66
MW-17*	20.75	4.02	7.06	3.04	16.35
MW-19	21.36	--	6.77	--	14.59
MW-20*	20.33	3.96	4.36	0.40	16.32
MW-21	20.83	--	1.89	--	18.94
MW-22	19.44	2.83	2.94	0.11	16.60
MW-23	20.40	--	4.33	--	16.07
MW-35	19.92	--	4.84	--	15.08
MW-36*	21.25	5.97	7.27	1.30	15.12
MW-37	19.09	--	4.92	--	14.17
MW-38D	21.50	--	5.71	--	15.79
MW-39D	21.35	--	6.25	--	15.10
MW-40D	22.85	--	6.15	--	16.70
MW-49	20.39	--	5.06	--	15.33
MW-50*	20.20	4.04	8.60	4.56	15.59
MW-51	20.42	--	3.89	--	16.53
MW-52	19.24	--	3.14	--	16.10
MW-53*	21.40	4.71	6.09	1.38	16.52
MW-54*	20.59	3.90	4.28	0.38	16.64
MW-55	20.45	--	3.79	--	16.66
MW-56	22.68	--	5.90	--	16.78
MW-57	23.24	--	6.52	--	16.72
MW-58	19.60	--	2.93	--	16.67
MW-59	22.61	--	5.91	--	16.70
MW-60*	24.56	7.81	8.84	1.03	16.62
MW-63	22.10	--	5.55	--	16.55

-- No measurable product.

* Water-level elevations corrected for presence of separate phase petroleum. Correction for separate-phase petroleum assumes density of 0.874 (average specific gravity of petroleum samples collected at Yard).

Table 1. Summary of Water-Level and Separate-Phase Petroleum Thickness Measurements, Sunnyside Yard, Queens, New York.

Well Designation	Measuring Point Elevation (ft above mean sea level)	March 7, 1994			
		Depth to Petroleum (ft below measuring point)	Depth to Water (ft below measuring point)	Petroleum Thickness (ft)	Ground-Water Elevation (ft relative to mean sea level)
MW-13	17.33	--	1.52	--	15.81
MW-17*	20.75	3.71	7.20	3.49	16.60
MW-19	21.36	--	6.50	--	14.86
MW-20*	20.33	3.88	4.36	0.48	16.39
MW-21	20.83	--	4.01	--	16.82
MW-22	19.44	2.63	3.35	0.72	16.72
MW-23	20.40	--	4.17	--	16.23
MW-35	19.92	--	4.89	--	15.03
MW-36*	21.25	5.59	6.59	1.00	15.53
MW-37	19.09	--	4.79	--	14.30
MW-38D	21.50	--	5.57	--	15.93
MW-39D	21.35	--	6.04	--	15.31
MW-40D	22.85	--	5.90	--	16.95
MW-49	20.39	--	4.59	--	15.80
MW-50*	20.20	3.89	7.17	3.28	15.90
MW-51	20.42	--	3.84	--	16.58
MW-52	19.24	2.99	2.99	<0.01	16.25
MW-53*	21.40	4.59	6.05	1.46	16.63
MW-54*	20.59	3.69	5.20	1.51	16.71
MW-55	20.45	--	3.70	--	16.75
MW-56	22.68	--	5.79	--	16.89
MW-57	23.24	--	6.46	--	16.78
MW-58	19.60	--	2.86	--	16.74
MW-59	22.61	--	5.61	--	17.00
MW-60*	24.56	7.72	8.89	1.17	16.69
MW-63	22.10	--	5.50	--	16.60

-- No measurable product.
* Water-level elevations corrected for presence of separate phase petroleum. Correction for separate-phase petroleum assumes density of 0.874 (average specific gravity of petroleum samples collected at Yard).

Table 1. Summary of Water-Level and Separate-Phase Petroleum Thickness Measurements, Sunnyside Yard, Queens, New York.

Well Designation	Measuring Point Elevation (ft above mean sea level)	April 11 & 12, 1994			
		Depth to Petroleum (ft below measuring point)	Depth to Water (ft below measuring point)	Petroleum Thickness (ft)	Ground-Water Elevation (ft relative to mean sea level)
MW-13	17.33	--	1.66	--	15.67
MW-17*	20.75	4.17	6.82	2.65	16.25
MW-19	21.36	--	6.93	--	14.43
MW-20*	20.33	3.98	4.47	0.49	16.29
MW-21	20.83	--	4.20	--	16.63
MW-22	19.44	2.68	3.64	0.96	16.64
MW-23	20.40	--	4.31	--	16.09
MW-35	19.92	--	5.34	--	14.58
MW-36*	21.25	6.21	6.31	0.10	15.03
MW-37	19.09	--	5.06	--	14.03
MW-38D	21.50	--	5.70	--	15.80
MW-39D	21.35	--	6.27	--	15.08
MW-40D	22.85	--	6.09	--	16.76
MW-49	20.39	--	5.18	--	15.21
MW-50*	20.20	4.14	7.95	3.81	15.58
MW-51	20.42	3.92	4.03	0.11	16.49
MW-52	19.24	--	3.16	--	16.08
MW-53*	21.40	4.68	6.15	1.47	16.53
MW-54*	20.59	3.72	5.17	1.45	16.69
MW-55	20.45	--	3.74	--	16.71
MW-56	22.68	--	5.84	--	16.84
MW-57	23.24	--	6.48	--	16.76
MW-58	19.60	--	2.88	--	16.72
MW-59	22.61	--	5.83	--	16.78
MW-60*	24.56	7.80	8.84	1.04	16.63
MW-63	22.10	--	5.56	--	16.54

-- No measurable product.

* Water-level elevations corrected for presence of separate phase petroleum. Correction for separate-phase petroleum assumes density of 0.874 (average specific gravity of petroleum samples collected at Yard).

Table 1. Summary of Water-Level and Separate-Phase Petroleum Thickness Measurements, Sunnyside Yard, Queens, New York.

Well Designation	Measuring Point Elevation (ft above mean sea level)	April 25, 1994			
		Depth to Petroleum (ft below measuring point)	Depth to Water (ft below measuring point)	Petroleum Thickness (ft)	Ground-Water Elevation (ft relative to mean sea level)
MW-13	17.33	--	1.76	--	15.57
MW-17*	20.75	4.15	6.91	2.76	16.25
MW-19	21.36	--	7.03	--	14.33
MW-20*	20.33	4.04	4.54	0.50	16.23
MW-21	20.83	--	4.28	--	16.55
MW-22	19.44	2.82	3.00	0.18	16.60
MW-23	20.40	--	4.37	--	16.03
MW-35	19.92	--	5.43	--	14.49
MW-36*	21.25	6.27	6.41	0.14	14.96
MW-37	19.09	--	5.22	--	13.87
MW-38D	21.50	--	5.82	--	15.68
MW-39D	21.35	--	6.33	--	15.02
MW-40D	22.85	--	6.14	--	16.71
MW-49	20.39	--	5.29	--	15.10
MW-50*	20.20	4.14	8.85	4.71	15.47
MW-51	20.42	3.96	4.12	0.16	16.44
MW-52	19.24	--	3.26	--	15.98
MW-53*	21.40	4.75	6.11	1.36	16.48
MW-54*	20.59	3.87	4.74	0.87	16.61
MW-55	20.45	--	3.81	--	16.64
MW-56	22.68	--	5.94	--	16.74
MW-57	23.24	--	6.55	--	16.69
MW-58	19.60	--	2.96	--	16.64
MW-59	22.61	--	5.89	--	16.72
MW-60*	24.56	7.87	8.83	0.96	16.57
MW-63	22.10	--	5.61	--	16.49

-- No measurable product.

* Water-level elevations corrected for presence of separate phase petroleum. Correction for separate-phase petroleum assumes density of 0.874 (average specific gravity of petroleum samples collected at Yard).

Table 1. Summary of Water-Level and Separate-Phase Petroleum Thickness Measurements, Sunnyside Yard, Queens, New York.

Well Designation	Measuring Point Elevation (ft above mean sea level)	May 31, 1994			
		Depth to Petroleum (ft below measuring point)	Depth to Water (ft below measuring point)	Petroleum Thickness (ft)	Ground-Water Elevation (ft relative to mean sea level)
MW-13	17.33	--	1.84	--	15.49
MW-17*	20.75	4.12	7.04	2.92	16.26
MW-19	21.36	--	7.11	--	14.25
MW-20*	20.33	4.08	4.59	0.51	16.19
MW-21	20.83	--	4.39	--	16.44
MW-22	19.44	2.86	3.62	0.76	16.48
MW-23	20.40	--	4.44	--	15.96
MW-35	19.92	--	5.47	--	14.45
MW-36*	21.25	6.36	6.50	0.14	14.87
MW-37	19.09	--	5.28	--	13.81
MW-38D	21.50	--	5.86	--	15.64
MW-39D	21.35	--	6.38	--	14.97
MW-40D	22.85	--	6.22	--	16.63
MW-49	20.39	--	5.35	--	15.04
MW-50*	20.20	4.17	8.75	4.58	15.45
MW-51	20.42	4.02	4.18	0.16	16.38
MW-52	19.24	--	3.30	--	15.94
MW-53*	21.40	4.80	6.08	1.28	16.44
MW-54*	20.59	3.92	4.80	0.88	16.56
MW-55	20.45	--	3.87	--	16.58
MW-56	22.68	--	6.03	--	16.65
MW-57	23.24	--	6.14	--	17.10
MW-58	19.60	--	3.03	--	16.57
MW-59	22.61	--	5.99	--	16.62
MW-60*	24.56	7.92	8.85	0.93	16.52
MW-63	22.10	--	5.68	--	16.42

-- No measurable product.

* Water-level elevations corrected for presence of separate phase petroleum. Correction for separate-phase petroleum assumes density of 0.874 (average specific gravity of petroleum samples collected at Yard).

Table 2. Summary of Polychlorinated Biphenyl Compound (PCB) Concentrations Detected in Seperate-Phase Petroleum Samples, Sunnyside Yard, Queens, New York.

Sample Designation:	RW-1	RW-3	MW-16	Recovery Ring 1
Sample Date:	2/16/94	2/16/94	2/16/94	2/16/94
Analytical Laboratory:	IEA	IEA	IEA	IEA
Polychlorinated Biphenyl (PCB) Compounds (Concentrations in ug/kg)				
Aroclor-1016	U	U	U	U
Aroclor-1221	U	U	U	U
Aroclor-1232	U	U	U	U
Aroclor-1242	U	U	U	32,000
Aroclor-1248	U	U	20,000	U
Aroclor-1254	U	U	U	U
Aroclor-1260	12,000	22,000	150,000	94,000

Sample Designation:	MW-17	MW-17	MW-22	MW-22
Sample Date:	3/7/94	6/1/94	3/7/94	6/1/94
Analytical Laboratory:	IEA	IEA	IEA	IEA
Polychlorinated Biphenyl (PCB) Compounds (Concentrations in ug/kg)				
Aroclor-1016	U	U	U	U
Aroclor-1221	U	U	U	U
Aroclor-1232	U	U	U	U
Aroclor-1242	U	U	U	U
Aroclor-1248	U	U	U	U
Aroclor-1254	U	U	U	U
Aroclor-1260	9,200	15,000	8,900	21,000

Sample Designation:	MW-50	MW-50	MW-54	MW-54
Sample Date:	3/7/94	6/1/94	3/7/94	6/1/94
Analytical Laboratory:	IEA	IEA	IEA	IEA
Polychlorinated Biphenyl (PCB) Compounds (Concentrations in ug/kg)				
Aroclor-1016	U	U	U	U
Aroclor-1221	U	U	U	U
Aroclor-1232	U	U	U	U
Aroclor-1242	U	U	U	U
Aroclor-1248	U	U	U	U
Aroclor-1254	U	U	3,500 J	5,000
Aroclor-1260	21,000	23,000	2,900 J	4,300 J

ug/kg - Micrograms per kilogram
U - Indicates that the compound was analyzed for but not detected.
J - Estimated value.