October 6, 2014

Mr. Benjamin Rung
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7013

RE: Claremont Polychemical Superfund Site (Site # 130015)
Liquid Phase Carbon Adsorber Recommendations For Removal

Dear Mr. Rung:

HRP Engineering P.C. (HRP) has completed evaluating the necessity of the liquid-phase granular-activated carbon (L-GAC) and associated equipment of the groundwater pump & treat system (GWTS) located at the Claremont Polychemical Superfund Site (Site). HRP was tasked with determining if the remediation system's final effluent discharge limitations and monitoring requirements would be met if the two (2) L-GACs vessels were removed from the treatment train. It is HRPs opinion that continued use of L-GAC is not required to obtain the remediation system's final effluent discharge limitations and monitoring requirements. In addition, HRP believes that the system has reached asymptotic levels.

The 1990 Record of Decision (ROD) describes required remediation for the Site including the active operation of the GWTS. Operable Unit No.4 (OU IV) is designated "Remedial Program" and involves the treatment of the on-site volatile organic compounds (VOC) that have contaminated on-site groundwater. HRP completed a Remedial System Optimization (RSO) as a multi-tiered approach to improving the efficiency, effectiveness and net environmental benefit of the remedial solution. The NYSDEC determined that the goal of the system is to maintain capture of the Claremont on-site plume to ensure it does not migrate past the treatment area, and to achieve remedial action objectives outlined in the ROD and the RSO. The results of the RSO determined that the pumping rates for the GWTS could be reduced by 10% and still maintain capture of the Claremont on-site plume.

In order to minimize the capture of clean groundwater due to vertical movement in the well, packers were installed in two of the three extraction wells (EX-1 and EX-2). Following the installation of the packers, a step-drawdown test was conducted in order to determine the ideal pumping rates for each well to maximize the capture of VOC contaminated water while falling within the current capacity of the GWTS. In addition, extraction wells EX-1 and EX-2 pumping rates were decreased by approximately half on August 11, 2014 with resultant pumping rates of approximately 57 gpm and 88 gpm, respectively. The pump in EX-2 was shut off on August 25, 2014 at the request of the NYSDEC. The remainder of this letter report provides an overview of the current remediation system, an evaluation of the effectiveness and necessity of the L-GACs, as well as conclusions and recommendations.

Current Liquid Phase Granular Activated Carbon Utilization

The GWTS has effectively recovered and treated groundwater from the Claremont on-site Plume and potentially from up-gradient source areas since it was started in February 2000. During remediation in the GWTS, the process water from the air stripper tower enters the carbon adsorber feed tanks prior to being pumped through the L-GAC vessels. The L-GAC system removes any semi-volatile organics (SVOCs) and residual volatile organics (VOCs) remaining after air stripping. The design of the system is such that each adsorber can be removed from service while the system remains operational. The absorbers can easily be bypassed if no longer required.

The last carbon change occurred in May 2008, at which point approximately two-thirds of the carbon was removed and replaced. Approximately one-third of the carbon in the bottom of the LSAs has been in use on-site for over eight years. Operation and Maintenance of these vessels includes quarterly backwashing operations or when the differential pressure across the vessels exceeds 5 psi. This occurs every 2-3 months with the carbon and sediment removed run through a filter press to remove excess water and to decrease the volume of carbon for easier storage and shipment in 55- gallon steel drums. The carbon cakes from the filter press sampled high for technically enhanced naturally occurring radiation material (TENORM) in spring 2014.

On April 15, 2014, an assessment of the ionizing and non-ionizing radiation environment within the water treatment building was performed at the Site by Integrated Environmental Management, Inc of Gaithersburg, Maryland. The ionizing radiation potential in the work areas of interest were low and well-within the normal range of background radiation exposure rates across the US. Exposure rates measured on contact with the GAC tanks and on the drums of staged filtercake, although not representative of whole-body exposure rates to people, are clearly distinguishable from background. Testing indicates the radionuclides of interest are isotopes of radium (i.e., Radium-226 and Radium-228) and are present due to technically enhanced naturally occurring radioactive material (TENORM). The carbon is removing radium 226 and radium 228 from the ground water and essentially concentrating it, however the levels during the last carbon change and from the samples of material from the filter press were not high enough to warrant permitting the facility as a radioactive site. The carbon waste can be disposed as a non-hazardous waste with a signed NORM/TENORM Waste Addendum under DOT-special permits 11406 and DOT 173.435 (10-1-05) “UN2910, Radioactive Material, excepted package-limited quantity of material.”

Process Water Analytical Discussion

Plant monitoring of the influent to the liquid phase carbon has indicated that the effluent discharge requirements for VOCs are being met prior to polishing of the treated groundwater by the liquid phase carbon. The plant monitoring has indicated that the liquid phase carbon is primarily acting as a media bed filter for sediment removal. While the liquid phase carbon is providing this filtering, the influent concentrations are well within the facility’s discharge permit effluent limitation.

Concentrations of contaminants of concern have decreased to levels where the un-treated influent water is at or below the remediation system’s final effluent discharge limitations and moni-

toring requirements with several exceptions. The attached table highlights the typical concentrations of the primary constituents of concerns (metals and VOCs) compared to the effluent limitation for 2000-2001, 2011-2012, and the most recent sampling events (April – August 2014). VOCs concentration has decreased drastically over the past fourteen year span shown on Table 1 and are currently all below the effluent limitations, including influent L-GAC sample concentrations. With the exception of several metals noted in Tables 1 and 4, the concentrations of the contaminants of concern in each of the sample locations (GAC inlet, GAC outlet, and plant effluent) have been non-detect or below effluent concentrations.

TABLE 1

TYPICAL CONCENTRATIONS- PRIMARY CONSTITUENTS OF CONCERN

Sampling Location	METALS				VOCs					
	Iron		Manganese		TCE		PCE		1,1-DCE	
	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX
	2000-2001									
GAC Inlet	**787**	**4,610**	**8,285**	**8,380**	**478**	**730**	**616**	**900**	**14**	**25**
GAC Outlet	ns	ns	ns	ns	nd <5	nd <5	nd <5	nd <5	nd <5	nd <5
Plant Effluent	120	402	**8120**	**8270**	nd <5	nd <5	nd <5	nd <5	nd <5	nd <5
	2011-2012									
GAC Inlet	36.7	36.7	415	415	nd <5	nd <5	nd <5	nd <5	nd <5	nd <5
GAC Outlet	na	na	na	na	nd <5	nd <5	nd <5	nd <5	nd <5	nd <5
Plant Effluent	42.9	42.9	4.6	4.6	0.26	0.43	1.8	1.8	nd <5	nd <5
	April 2014-August 2014									
GAC Inlet	0.08	0.84	0.19	0.242	nd <5	nd <5	nd <5	nd <5	nd <5	nd <5
GAC Outlet	0.8	2.87	1.05	4.87	0.024	0.12	nd <5	nd <5	nd <5	nd <5
Plant Effluent	0.08	0.085	0.17	0.203	0.13	0.29	nd <5	nd <5	nd <5	nd <5
Effluent Limitation	600		600		5		5		5	

Tables 2 through 4 (follow texts) highlights the analytical concentrations of the primary constituents of concerns (SVOCs, VOCs, and Metals) of water in the GWTS compared to the effluent limitation for April 16, 2014 through August 7, 2014 collected on a semi-monthly basis to determine if the L-GAC units are not required to meet effluent limitations. With the exception of three metals (manganese, lead, and iron) the groundwater sample results were less than groundwater class GA criteria. Recent concentrations have all decreased to below NYSDEC action levels. It should also be noted that the metal exceedances were located in the L-GAC effluent samples, which given the water pre-L-GAC contamination levels were below the NYSDEC Class GA criteria, the age of the carbon, and the known TENORM levels leaching from the car-

bon, suggests that the exceedances are not actual groundwater concentrations but possible metals leaching out of the carbon. The metal influent concentrations have dropped several orders of magnitude since the carbon was installed 6 years ago and the metal that was historically absorbed by the carbon is now leaching out of the carbon at levels below effluent limitations and NYSDEC Class GA Criteria.

Liquid Phase Carbon Equipment Removal Cost Impact

The L-GAC units are the equipment in the GWTS that requires the most operation and maintenance. The units require backwashing that requires the entire treatment system to be off-line during the backwashing operations. Removing the liquid phase carbon treatment units would reduce operating costs by approximately $20,000 per year as the electricity to the existing dual feed system would not be required, labor for backwashing would not be required, and backwashed solids would not be required to be shipped off-site.

Carbon replacement has occurred approximately every 6-7 years with the system at a cost of approximately $25,000, which equates to around $4,200 in annual savings. The carbon units could be removed intact and sold for their salvage value or, cut up and sold for scrap metal. The cost of the carbon disposal is higher than normal carbon removal costs due to the presence of technically enhanced naturally occurring radioactive material (TENORM). The TENORM is present in the carbon due to naturally occurring radioactive material (NORM) that has accumulated in the carbon during the over 3 billion gallons of water that has been treated since the carbon was installed. The anticipated costs of the removal of the units intact would be approximately $1,300,000, and would be offset by the tanks salvage value of $16,329.

There would be a cost savings in the amount of work required for the removal of the tanks if they were to be scrapped. The cost of the work for this option is $17,400 and the scrap value of the tanks is $1,930. The anticipated cost for this option is $15,470.

The filter press also requires mainatence and can also be removed from the site. The filter press itself can be dissembled and the metal pieces can be scrapped. The used hydraulic oil in the machine and onsite will be containerized and properly disposed of. The cost of the work for this option is $1,200 and the scrap value of the filter press is $100. The anticipated cost for this option is $1,100.

Liquid Phase Carbon Removal

Conclusions

The semi-monthly sampling events that occurred from June 2014 through August 2014, in conjunction with the historical system sampling events, support that the pre-carbon L-GAC contamination levels are similar to the post-carbon L -GAC levels in the system water samples analyzed. Based on the results of the system sampling analytical, the L-GAC's are not needed in the treatment train based on the contamination concentrations well below the remediation system's final effluent discharge limitations and monitoring requirements limits seen in the pre-carbon and post carbon water samples. The post carbon analytical results show no appreciable removal of contamination constituents when compared to the pre carbon analytical results,

which also supports that the L-GAC's are redundant in the treatment train based on current contamination levels. Additionally, the carbon that is bypassing the catch points in the system and ultimately depositing in the injection wells will be stopped, eliminating the potential chock point in the effluent flow of the system.

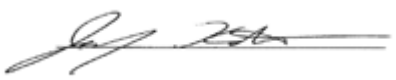
Recommendations

HRP recommends removing the liquid carbon currently on site under the supervision of a radiation specialist and properly disposing of the carbon off site. The LGAC units will be bypassed prior to removal to minimize GWTS downtime. Subsequently, the carbon vessels and additional equipment associated with the carbon vessels mentioned above can be removed from the site and sold for scrap. The system would continue to operate as it currently does and would continue monitoring of the effluent discharge limitations and monitoring requirements limits.

If you have any further questions or comments, please do not hesitate to call HRP at 518.877.7101.

Sincerely,

HRP ENGINERING, P.C.



Jennifer Kotch
Senior Project Geologist

Nancy Garry, PE
Project Manager

Table 2
Claremont Polychemical Site(Site # 130015)
505 Winding Road
Old Bethpage, New York
April 16, 2014 thorugh August 7, 2014
Groundwater Samples - Analyzed for EPA Method 8270
(Only detected constituents are listed)

		CAS #	84-74-2
		NYSDEC Class GA Criteria	50
Sample Name	Sample ID	Date Collected	Di-n-butyl phthalate
		EPA Method 8270 ug/L	
PD-009-CP-00-041614	Plant discharge	4/16/2014	<10
PD-009-CP-00-062514		6/25/2014	<10
PD-009-CP-00-072314		7/23/2014	<10
PW-007-CP-00-062514	LCA influent	6/25/2014	<10
PW-007-CP-00-070914		7/9/2014	<10
PW-007-CP-00-072314		7/23/2014	<10
PW-007-CP-00-080714		8/7/2014	<10
PW-008A-CP-00-062514	LCA-1 effluent	6/25/2014	<10
PW-008A-CP-00-070914		7/9/2014	**1.3**
PW-008A-CP-00-072314		7/23/2014	<10
PW-008A-CP-00-080714		8/7/2014	<10
PW-008B-CP-00-062514	LCA-2 effluent	6/25/2014	<10
PW-008B-CP-00-070914		7/9/2014	**1.2**
PW-008B-CP-00-072314		7/23/2014	<11
PW-008B-CP-00-080714		8/7/2014	<10

Bold	Sample is Above Non-Detect Value but Below Objective
Bold	Sample Exceeds Unrestricted Objective
<###	Sample is Non-Detect at Laboratory
CAS #	Chemical Abstract Service Number
SVOCs	Semi-Volative Organcic Compounds
ug/L	micrograms per liter
LCA	liquid-phase granular-activated carbon

Table 3
Claremont Polychemical Site(Site # 130015)
505 Winding Road
Old Bethpage, New York
April 16, 2014 thorugh August 7, 2014
Groundwater Samples - Analyzed for EPA Method 8260
(Only detected constituents are listed)

		CAS #	67-66-3	79-01-6	1634-04-4
		NYSDEC Class GA Criteria	7	5	10
Sample Name	Sample ID	Date Collected	Chloroform	Trichloroethylene	Methyltertbutyl ether
			EPA Method 8260 ug/L		
PD-009-CP-00-041614	Plant discharge	4/16/2014	<1	**0.12**	<1
PD-009-CP-00-062514		6/25/2014	**0.15**	**0.29**	<1
PD-009-CP-00-072314		7/23/2014	<1	<1	<1
PW-007-CP-00-041614	LCA influent	4/16/2014	<1	<1	<1
PW-007-CP-00-062514		6/25/2014	<1	<1	<1
PW-007-CP-00-070914		7/9/2014	<1	<1	<1
PW-007-CP-00-072314		7/23/2014	<1	<1	<1
PW-007-CP-00-080714		8/7/2014	<1	<1	<1
PW-008A-CP-00-041614	LCA-1 effluent	4/16/2014	<1	<1	<1
PW-008A-CP-00-062514		6/25/2014	<1	<1	<1
PW-008A-CP-00-070914		7/9/2014	<1	<1	<1
PW-008A-CP-00-072314		7/23/2014	<1	<1	<1
PW-008A-CP-00-080714		8/7/2014	<1	<1	<1
PW-008B-CP-00-041614	LCA-2 effluent	4/16/2014	<1	<1	<1
PW-008B-CP-00-062514		6/25/2014	<1	<1	<1
PW-008B-CP-00-070914		7/9/2014	<1	<1	<1
PW-008B-CP-00-072314		7/23/2014	<1	<1	<1
PW-008B-CP-00-080714		8/7/2014	<1	**0.12**	<1

Bold	Sample is Above Non-Detect Value but Below Objective
Bold	Sample Exceeds Unrestricted Objective
<###	Sample is Non-Detect at Laboratory
CAS #	Chemical Abstract Service Number
VOCs	Volatile Organic Compounds
ug/L	micrograms per liter
LCA	liquid-phase granular-activated carbon

Table 4
Claremont Polychemical Site(Site # 130015)
505 Winding Road
Old Bethpage, New York
April 16, 2014 thorugh August 7, 2014
Groundwater Samples - Analyzed for Target Analyte List (TAL) Metals
(Only detected constituents are listed)

		CAS #	7439-96-5	7439-92-1	7439-89-6	7440-47-3	7440-43-9	7440-39-3
		NYSDEC Class GA Criteria	0.3	0.025	0.3	0.05	0.005	1
Sample Name	Sample ID	Date Collected	Manganese	Lead	Iron	Chromium, Total	Cadmium	Barium
			RCRA Metals mg/L					
PW-007-CP-00-041614	Plant discharge	4/16/2014	**0.1966**	<0.010	**0.08505**	<0.010	<0.004	**0.07986**
PW-007-CP-00-041614		4/16/2014	**0.203**	**0.0059**	**0.0842**	<0.010	<0.004	**0.0801**
PW-007-CP-00-062514		6/25/2014	**0.164**	<0.010	<0.150	<0.010	<0.004	**0.0852**
PW-007-CP-00-070914		7/9/2014	**0.167**	<0.010	<0.150	<0.010	<0.004	**0.0788**
PW-007-CP-00-072314		7/23/2014	**0.169**	<0.010	<0.150	<0.010	<0.004	**0.08254**
PW-007-CP-00-072314		7/23/2014	**0.168**	<0.010	<0.150	<0.010	<0.004	**0.0829**
PW-007-CP-00-080714		8/7/2014	**0.173**	<0.010	<0.150	<0.010	<0.004	**0.0825**
PW-007-CP-01-062514	LCA influent	6/25/2014	**0.170**	<0.010	<0.150	<0.010	<0.004	**0.0861**
PW-007-CP-01-070914		7/9/2014	**0.1879**	<0.010	<0.150	<0.010	<0.004	**0.08235**
PW-007-CP-01-070914		7/9/2014	**0.183**	<0.010	<0.150	<0.010	<0.004	**0.0798**
PW-007-CP-01-072314		7/23/2014	**0.178**	<0.010	<0.150	<0.010	<0.004	**0.084**
pw-007-CP-01-080714		8/7/2014	**0.242**	<0.010	<0.150	<0.010	<0.004	**0.0855**
PW-008A-CP-00-041614	LCA-1 effluent	4/16/2014	**3.270**	**0.0069**	**2.870**	<0.010	<0.004	**0.134**
PW-008A-CP-00-062514		6/25/2014	**0.250**	<0.010	**0.935**	<0.010	<0.004	**0.0834**
PW-008A-CP-00-070914		7/9/2014	**0.998**	<0.010	**0.549**	<0.010	<0.004	**0.108**
PW-008A-CP-00-072314		7/23/2014	**0.0791**	<0.010	<0.150	<0.010	<0.004	**0.0808**
PW-008A-CP-00-080714		8/7/2014	**0.161**	<0.010	**0.450**	<0.010	<0.004	**0.0854**
PW-008B-CP-00-041614	LCA-2 effluent	4/16/2014	**4.870**	**0.028**	**0.284**	**0.0103**	**0.0035**	**0.264**
PW-008B-CP-00-062514		6/25/2014	**0.0455**	<0.010	<0.150	<0.010	<0.004	**0.0792**
PW-008B-CP-00-070914		7/9/2014	**0.688**	**0.009**	**0.0789**	<0.010	<0.004	**0.116**
PW-008B-CP-00-072314		7/23/2014	**0.0515**	<0.010	<0.150	<0.010	<0.004	**0.0794**
PW-008B-CP-00-080714		8/7/2014	**0.125**	**0.0053**	<0.150	<0.010	<0.004	**0.084**

Bold	Sample is Above Non-Detect Value but Below Objective
Bold	Sample Exceeds Unrestricted Objective
<###	Sample is Non-Detect at Laboratory
CAS #	Chemical Abstract Service Number
NE	Not Established
mg/L	Milligrams per liter
Chromium, Total	Chromium DEC standards as shown are for Hexavalent Chromium.
LCA	liquid-phase granular-activated carbon