



WELLSBORO & CORNING RAILROAD

ATILES GROUP COMPANY

DRAFT Engineering Report

for the

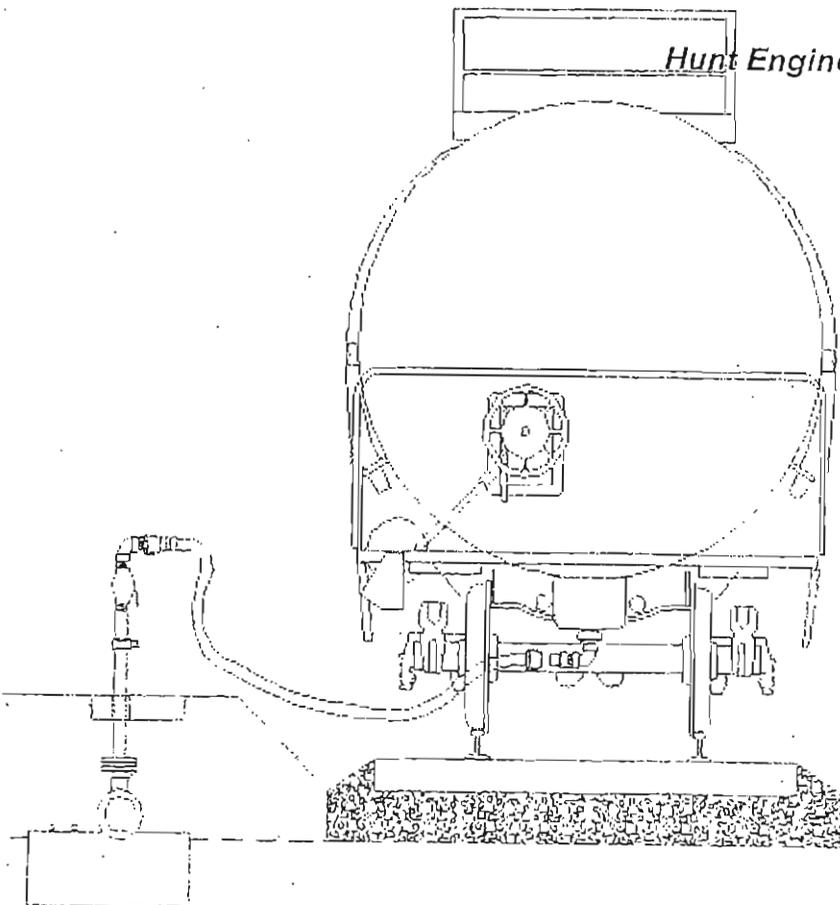
**Wellsboro & Corning Railroad
Painted Post Transloading Facility**

**Village of Painted Post
Steuben County, New York**

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Revised November 11, 2011

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I. INTRODUCTION

The Wellsboro & Corning Railroad is proposing to install a transloading facility at the former Ingersoll Rand Foundry located at 350 West Water Street, Painted Post, NY. The facility will be operated 24-hours-a-day by the Wellsboro Corning Railroad. The project will be constructed so as to provide an automated water loading system that will withdraw potable water from the Painted Post municipal water piping that is currently located on the project site. A new rail siding will be constructed within this proposed project area, and tanker cars will be parked on the siding while the loading process is being completed.

2. SITE HISTORY

The project will be located at 350 West Water Street in Painted Post, New York, and will encompass a portion of the former Ingersoll Rand (IR) Foundry property. In 1848 the site housed a machine shop and foundry that was owned by Weston Engine Company, which was a subsidiary of Rand Drill Company. In 1905 Rand merged with Ingersoll Sergeant Drill Company to become Ingersoll Rand, and the foundry was owned and operated by IR until 1986 when IR merged with Dresser Industries to become Dresser-Rand Company. The foundry produced gray iron castings for air compressors until it closed in 1986. The original parcel was 57.4 acres, and in 1986 a 7.5-acre parcel was conveyed to the Village of Painted Post for the use as a recreation park that is now known as Hogmen Park.

After the foundry was idled in late 1985, an environmental evaluation and cleanup was conducted by IR on the foundry site under the supervision of the New York State Department of Environmental Conservation (DEC) pursuant to an administrative order whereby an interim remedial measure was completed that included removal of contaminated soils, demolition and removal of contaminated walls and flooring, and removal of other contaminated metal components.

As the result of IR's initial remedial actions and evaluation, the DEC listed a portion of the IR Property on the State's Registry of Inactive Hazardous Waste Disposal Sites (the "disposal site"). In March 1994, DEC issued a Record of Decision (the ROD) which prescribed certain cleanup measures, as well as groundwater monitoring. The ROD also required the implementation of institutional controls restricting the use of groundwater withdrawn directly from the IR Property, directing the placement of a deed restriction on the IR Property, essentially requiring that any future uses be limited to commercial or similar uses. The ROD also required the construction of certain fencing and other security measures.

Thereafter, the ROD was implemented and the prescribed monitoring revealed contaminate levels below applicable groundwater standards. Further, the deed restrictions required by the ROD were also implemented by IR in January of 2001. By determination dated September 25, 2003, DEC de-listed disposal site with DEC finding that: "the contamination identified at the [disposal] site has been properly remediated." In so de-listing the disposal site the DEC found that: "No environmental problems associated with the disposal of hazardous waste remain at the site." A copy of the DEC's listing for the disposal site is available at the DEC website at www.dec.ny.gov. A summary of the pertinent investigations and remedial actions that have taken place at the old IR foundry site has been provided in the Soil Fill Management section of this report.

Following de-listing of the disposal site, additional investigations and remedial measures were completed on portions of the IR Property. As detailed below, the IR property was

subject to a condemnation proceeding in or about 2004 and pursuant to the settlement of that condemnation proceeding, the institutional controls implemented pursuant to the delisting of the disposal site were supplanted by updated institutional controls including a soil fill management plan (SFMP) which was implemented as part of the deed to the IR Property that was filed in 2005 as part of the condemnation settlement. In 2008, the DEC denied PPD's application to have the IR property included within the DEC's Brownfield Program, as DEC concluded that the work completed as part of the ROD and DEC's delisting of the disposal site precluded it from being considered as a candidate for clean up under that program. A copy of the DEC denial letter has been provided in Appendix A.

3. SOIL FILL MANAGEMENT PLAN

After the closing of the foundry in 1986 there were numerous environmental investigations and remedial actions taken on the 47-acre IR site. The following information was obtained from the *Remedial Work Plan* that was developed for the Painted Post Development, LLC by Malcolm Pirnie in August 2005.

December 1985 - As part of the site closure, IR contracted Capsule Environmental Engineers, Inc. (CEE) to identify areas on site that may contain PCBs. As a result of CEE's investigation they prepared a cleanup specification for removal of underground storage tanks, equipment cleaning, removal of spent raw materials, and removal of wastes generated during the cleanup process.

June 25, 1986 to August 12, 1988 - Allwash of Syracuse was awarded the initial PCB cleanup contract and completed the work in two "divisions." Division I activities included further evaluation of contaminated areas and the characterization of waste materials for subsequent disposal. Division II activities included the cleaning and removal of numerous underground storage tanks containing products including, Linocure A.W., Linoil 742, kerosene, gasoline, and diesel fuel. Also completed during Division II was the cleaning and removal of contaminated machinery, equipment and the excavation of contaminated soil. Soil contaminants included PCBs, oil and grease, and lead.

January 1992 - Law Environmental of Albany, New York prepared (for CEE on behalf of IR) an Interim Stratigraphy Report for a Phase I Groundwater Quality Assessment. Two soil borings were drilled and sampled to the depth of 82 feet to determine subsurface conditions and finalize monitoring well construction details for the subsequent groundwater quality assessment.

September 1992 - Wenck Associates, Inc. of Maple Plain Minnesota (for CEE on behalf of IR) completed a Groundwater Quality Assessment. The purpose of the GQA was to satisfy requirements of Section VII of an Order on Consent between IR and the NYSDEC that was signed on October 2, 1987. Section VII addresses the question of whether or not past practices on site have led to impacts to groundwater. As part of this GWA, 13 groundwater monitoring wells were installed at seven locations. Some of the wells were installed in groups of two or more with each grouped well monitoring one of three unique water-production depths. Some wells monitored the 80-foot depth and were designated as "A" wells, others monitored the water table and were designated "B" wells. At well location 4, a third well was installed to monitor above an aquitard of limited extent at the 35-foot depth. The geology of the overburden was characterized, as were the chemical characterizations of the soil and groundwater flow and quality. The effects of pumping nearby municipal supply wells were also mapped to show a local effect at the site. Samples of fill material at well number MW-2 contained elevated PAHs (up to 11 PPM total PAHs) and the presence of toluene. At MW-

4A, soils and groundwater samples contained constituents of a petroleum product and benzene was present in the groundwater from well MW-4B at a concentration above the NYSDEC groundwater standard. Recommendations of the GQA report included confirmation sampling and further evaluation of the elevated PAHs at the MW-2B location.

February 9, 1993 - At the request of the DEC, CEE completed a subsurface investigation on behalf of IR, in response to a citizen allegation regarding the disposition of drums at the site. A soil trenching and sampling program was performed. Four trenches were excavated. Two drums were encountered, sampled, and removed. One of the two drums contained ash-like material and was suspected to have been used for trash burning. Excavated material primarily consisted of black and tan sands with treated wood and miscellaneous debris. Treated wood included small bits to full size railroad ties. The report concluded that no material found in the trenches would indicate that IR improperly disposed of hazardous materials in drums through burial on site and recommended no further subsurface investigation.

1993 Quarterly Groundwater Monitoring - Quarterly groundwater quality monitoring was performed beginning in the second quarter of 1993. References to this monitoring data (see 2/25/94 FS report described below) indicate that sample results since beginning the quarterly monitoring through the subsequent two years resulted in no exceedances of NYS groundwater standards or Federal MCLs.

August 2, 1993 - Per the recommendations made in the September 1992 Groundwater Quality Assessment Report, CEE, on behalf of IR, prepared a report titled "Report of the Subsurface Evaluation of MW-2B-Additional Groundwater Quality Assessment Investigation." CEE drilled eight soil borings at and around well MW-2B to further delineate the area of elevated PAHs. One boring was placed adjacent to well MW-2B, four borings were placed around the center boring at a distance of 40 feet, and two were placed at a distance of 75 feet. Where conditions allowed, samples were collected at the three-foot depth and directly below the fill, which ranged in thickness between six and 13 feet. All samples were analyzed for semivolatile organic compounds. All samples from the three-foot depth contained PAHs with a maximum of 25 PPM. Samples of the native soils beneath the fill contained no significant PAHs. Stated conclusions of the report were that significant levels of PAHs are not vertically migrating and impacting the natural soils at the site and that previous groundwater sampling data for wells MW-2A and MW-2B indicate that PAHs have not impacted the groundwater at this well location. Additional evaluation of the PAHs was not deemed warranted.

February 25, 1994 - CEE, on behalf of IR, prepared a Focused Feasibility Study (FFS) for the site in February 1994. As part of the FFS, a risk assessment was performed that focused on the presence of TCA in one of the nearby municipal supply wells (Well #4). The risk assessment concluded that the groundwater beneath the site is in compliance with state and federal MCLs and that groundwater beneath the site is unlikely to pose any health concerns to the community. The FS recommended the following:

- Limited groundwater monitoring at the site,
- Fencing of the site to limit access, and,
- A deed restriction to notify future property owners of the presence of contaminants in the vicinity of MW-2B.

August 25, 1994 - In accordance with a Record of Decision (ROD) signed in March 1994, CEE, on behalf of IR, submitted a Sampling and Analysis Plan for

long-term monitoring of site groundwater quality. The SAP outlined plans for the sampling of six on-site and two near off-site monitoring wells for VOCs five times over a period of three calendar years (1994, 1995, and 1996).

September 9, 1997 - CEE, on behalf of IR, prepared a 1997 Annual Ground Water Monitoring Report. Presumably the long-term groundwater monitoring was performed uninterrupted since beginning in 1994. The report presents results of VOC analysis of the eight wells specified in the 1994 SAP. The report documents very low concentrations (less than 1 ug/l) of several VOCs with only 1,1,1 - TCA present above 1 ug/l ranging up to 6 ug/l.

May 2004 - Malcolm Pirnie performed a supplemental environmental investigation on behalf of the Painted Post Development, LLC in April 2004 in support of a due-diligence effort for property acquisition. Soil borings were conducted to delineate and characterize the extent of polycyclic aromatic hydrocarbons (PAHs) within the deed restricted radius of monitoring well MW-2B. Samples of the soil and overburden material were also collected as part of a preconstruction geotechnical study. Results of the investigation confirmed that fill material does contain elevated concentrations of PAHs that exceed the DEC TAGM soil clean-up objectives. The fill material also contained elevated nickel, magnesium, and zinc at concentrations that exceeded typical background soil concentrations. The soil sample analytical results from this investigation were summarized in the RI Work Plan.

September 2004 - Malcolm Pirnie conducted RI sampling in September and October 2004. This sampling included drilling and sampling of 14 soil borings. From these borings, seven surface soil, 17 subsurface soil/fill, and three groundwater samples were collected. All samples from the RI sampling event were analyzed for Volatile Organic Compounds (VOCs), Semivolatile Organic Compounds (SVOCs), Polychlorinated biphenyls (PCBs), pesticides, TAL metals, cyanide, and pH. Tables 2-1A, 2-2, and 2-3 provide a summary of the analytical results of the RI. See Appendix E.

November 2004 - On November 12, 2004 as part of a pre-construction supplemental characterization study, five surface soil samples (0-2" depth) were collected to further delineate the lateral extent of elevated PCB concentrations detected at a single point sampled during the RI. The five samples were collected in a circular pattern approximately 100 feet from soil boring SB-EN-02 and analyzed for PCBs. Table 2-1 B provides a summary of analytical results of the surface soil samples collected for PCBs.

4. WATER SYSTEM

The Village has numerous water lines within the 11.8-acres that will be leased to the Wellsboro Corning Railroad and access for maintenance will be retained by the Village. Currently there is an 8-inch water line that supplies water to the old fire protection system within an existing building located on the 11.8-acre site. The Village currently uses the building for salt storage and the fire system has not been functional for a number of years. It is proposed that the existing fire system be removed from the building and the 8-inch supply line be used to supply water for the transloading operation. The existing salt storage building will be used to house the reduced pressure zone assembly valves that are required by the New York Department of Health and the Village of Painted Post. A new interior room will be constructed with a separate man door. Heat and electric service will be provided.

HUNT has the hydraulic water model for the entire Village water system. The hydraulic model is a computer software program that provides HUNT with the ability to build an electronic model of an existing or proposed water distribution system for a small or large community. The model typically consists of junction points and pipes. The junction points are normally shown as dots and are labeled with an individual number. The points are used to indicate buildings, hydrants or other types of water users. The program allows the user to place information about the location and type of water demand placed at each junction point. The lines between the junction points represent pipes. The model allows the engineer to define the type of pipe and other information that the program uses to calculate the flow within each pipe at points within in the network of pipes. The junction points and pipes are placed over a scale map of the Village's water distribution system so as to provide an accurate model of the existing water distribution network.

To begin the analysis of this development within the Village's existing water system and its ability to provide the proposed demand of 1000 gpm the computer model was run using the existing system under normal demands as a baseline. A demand of 1000 gpm was then placed on junction point 232, which is the point that this proposed project will connect to the Village's existing water system. The results from the model have indicated that a flow of 1000 gpm at the transloading site junction point 232 would not produce any adverse low pressures within the Village's water system. The Village has a normal working pressure range between 80 and 90 psi, and these pressures are well above the Ten States Minimum Standard of 30psi. The data provided from the baseline run was compared to the run with the additional 1000 gpm load and the difference in pressures was analyzed to determine the effect on the Village's water system. The model indicated that that the average pressure, at each point, was reduced by an average of 0.2 psi. The maximum pressure deduction occurred at junction J 148 when the pressure was reduced 4.31 psi. (98.34 psi to 94.03 psi) Junction 148 is a fire hydrant located at the intersection of Keefe Boulevard and Fairview Extension.

The new water distribution piping within the transloading system will be supplied water through a new 8-inch ductile iron pipe (DIP) placed along the new rail siding with factory interlocking constrained joints. The 8-inch pipe will distribute water to 42 loading stations that will be spaced approximately 55-feet apart along the 2,400 lineal feet of new 8-inch water line. Each railroad tanker, positioned at each station, has a 3-inch connection that will be used to fill each tanker with approximately 23,100 gallons of water. The site was designed for 42 tanker cars and each cycle will fill all forty two (42) tankers for a total of 970,000 gallons in approximately 16 hours.

Each loading station will have a 3-inch electronic actuating ball valve that will be controlled by an overall Supervisory Control and Data Acquisition (SCADA) system that will sense when each loading station is connected to the tanker and when the tanker is filled to capacity. A worker operating the stations initiates the filling process by connecting the flexible hose from the vertical fill pipe to the 3-inch tanker connection and indicating the connection is complete on the control panel. The SCADA controls will open a maximum of three stations at one time and close each ball valve as the tankers reach capacity. The process of opening and closing of the ball valves is completely automated and the process can start anywhere along the 42 stations. Workers will disconnect the 3-inch hoses from each tanker and place them on the provided hanging rack. Once all 42 tanker cars are filled to capacity the railroad will pull them off the new siding and replace them with empty tankers and the filling process will begin again.

The SCADA system will instantaneously monitor the rates and volumes of the filling process and provide all necessary records for reporting withdrawal volumes to the DEC and Susquehanna River Basin Commission. The Village may have access to the SCADA system to monitor flows and volumes for their own record keeping. In addition the Village will have access to the RPZ valve room that will be located in the Village's

existing salt storage building. The RPZ room will have an electronic meter that will provide totalized volume data and flow rates of the water withdrawn from the Village's water system.

Due to the potential environmental impacts the excavation has been kept to a minimum for this site design. Normally water piping is placed in the ground with a minimum ground cover of 5-feet to remain below the normal frost level. The new water distribution piping, installed parallel to the new rail siding, will be placed on top of the existing ground. A cover of approximately 18 inches of offsite soil will be placed over the new pipes. The water pipe will be protected from freezing by the installation of an electrical heat trace cable placed around the water piping system.

6. STORMWATER

The SFMP indicates that the current DEC stormwater regulations for mitigating increased runoff rates and water quality requirements are to be followed according to any normal project that is greater than one acre of disturbance. Due to the nature of this site, Redevelopment Criteria following the Chapter 9 of the New York State Stormwater Management Design Manual, (NYSSMDM) will need to be applied to provide Runoff Reduction Volume and/or Water Quality Treatment. This site is broken into two main drainage areas; one that drains to the east and one that drains to the west.

Redevelopment Criteria will be applied to the drainage area that drains to the east. This drainage area encompasses most of the existing foundry site. The development of this site will result in a significant decrease in impervious area because of the amount of earth fill that will be placed over the existing concrete pads that remain from the old foundry building. The placement of fill over the impervious surfaces will increase the ability of the site to infiltrate stormwater thus decrease runoff. Therefore, following redevelopment criteria from the NYSDEC Stormwater Management Design Manual additional water quality or quantity controls will not be required in this drainage area. The drainage area that flows to the west primarily consists of meadow and wooded areas. This portion of the site allows for the implementation of the standard practices for new development as outlined by the NYSDEC Stormwater Management Design Manual. Runoff Reduction and Water Quality for this area will be provided through a vegetated swales and a bioretention area. In addition to providing water quality, the bioretention area has been sized to contain the one-year storm to allow the channel protection volume to infiltrate through the bottom of the bioretention area. There are no water quantity increases created by the development of this section of the site. The proposed stormwater practices for this development have been designed according to the DEC standard specifications. Infiltration testing will be performed for the bioretention practice. The results of this testing will be used to complete the bioretention sizing calculations.

Storm drains will be placed in the sidewalk near each loading station to catch any water released from the flexible hoses and rainwater collection on the sidewalk.

Stormwater will be allowed to sheet flow across grassed areas whenever possible to provide onsite water quality.

7. SUMMARY

The proposed transloading facility will be operated by the Corning & Wellsboro Railroad. The Wellsboro & Corning Railroad is a 38-mile short line that runs from Corning, New York to Wellsboro, Pennsylvania. WCOR makes interchange with the Norfolk Southern Railroad and The Canadian Pacific Railroad at Gang Mills New York. In addition to products for agriculture and manufacturing, WCOR handles various commodities used to support the burgeoning market surrounding the Marcellus Shale exploration.

The construction of a new railroad siding and water loading facilities have been designed to minimize disturbance to the existing site as much as possible. The majority of the construction at this site will be performed by filling on top of the existing ground with clean fill and new grassed areas in addition to a small amount of asphalt placed over existing impervious surfaces. The proposed design is primarily redevelopment in nature and will result in a decrease in impervious area from 5.17 acres to 2.89 acres within the disturbed area.

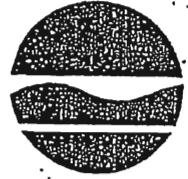
The design of the Painted Post transloading facility takes into consideration the potential environmental issues with this site, and has limited the earth disturbance to a minimum and has followed the soil fill management plan that was developed by Malcolm Pirnie for the Painted Post Development LLC. The Village's water system will be virtually unaffected by the additional 1000gpm withdrawal of the loading facility.

Final permitting for the water withdrawal and development of the site are ongoing and construction of the site is expected to begin near the end of 2011 or the beginning of 2012 if all permitting and approvals have been obtained.

APPENDIX A

**New York Department of Environmental Conservation
Letter of Denial**

New York State Department of Environmental Conservation
Division of Environmental Remediation, 12th Floor
625 Broadway, Albany, New York 12233-7011
Phone: (518) 402-9706 • FAX: (518) 402-9020
Website: www.dec.ny.gov



Alexander B. Grannis
Commissioner

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

JUN 26 2008

Painted Post Development, LLC
c/o Jack E. Benjamin, Manager
5 East Market Street
Suite 301
Corning, New York 14830

RE: 450 West Water Street, Painted Post, NY
Former Ingersoll-Rand Foundry Site
Brownfield Cleanup Program Application
Index No B8-0665-04-06
Site #C851012

Dear Mr. Benjamin:

The New York State Department of Environmental Conservation (Department) has reviewed the application of Painted Post Development, LLC, dated May 12, 2004, for participation in the Brownfield Cleanup Program with respect to property known as the Ingersoll-Rand Foundry Site, located at 450 West Water Street, Painted Post, New York. The property subject to the application originally consisted of approximately 57.41 acres. However, approximately 7.453 acres has since been conveyed to the Village of Painted Post for park purposes and is no longer included in the application. The property now subject to the application is a parcel, consisting of approximately 48.772 acres, formerly owned and occupied by Ingersoll Rand Corporation and subsequently conveyed by Ingersoll Rand to Painted Post Development, LLC by deed recorded in the Steuben County Clerk's Office in Book 1988 of Deeds at page 10 on December 1, 2005. The applicant's redevelopment plan to construct a 600,000 square foot distribution center was rejected by the local Planning Board based upon concerns expressed by nearby residents. Despite lack of a specific project, the applicant proceeded with the Brownfield Cleanup Program Application with the intent of marketing the site to a developer.

The Department has determined, based upon the remedial history of the site and information provided as part of the application, that the property does not meet the definition of "Brownfield site" as defined in Section 27-1405.2 of the Environmental Conservation Law ("ECL"): The Department must therefore deny the application pursuant to ECL 27-1407.8(a).

In making this determination, the Department considered whether there is confirmed evidence of contamination on the property, or a reasonable basis to believe that contamination may be present on the site, and whether such contamination or potential presence of contamination may complicate the reuse or redevelopment of the property.

Prior to closing in 1985, the Ingersoll-Rand Foundry site was a gray iron foundry that produced castings for air compressors. Facility closure activities included removal of stored hazardous and non-hazardous waste materials and appropriate off-site disposal. In 1986, elevated levels of PCBs were identified at several locations in and around the buildings. In 1987, the site was listed as a Class 2 site in the NYS Registry of Inactive Hazardous Waste Disposal Sites. From 1987 to 1989 remedial measures were conducted under a DEC consent order. These activities included excavation and removal of PCB-contaminated soil, demolition and removal of contaminated walls and concrete floor, and removal of structural metal components. A groundwater assessment was also completed and PCBs were not detected. In 1994, a Record of Decision (ROD) was issued that provided for deed restrictions to minimize exposure to subsurface soils containing elevated polycyclic aromatic hydrocarbons (PAHs). The ROD also provided for reclassification of the site from a Class 2 to a Class 4 and limited groundwater monitoring. The site was delisted on September 23, 2003 after several years of monitoring indicated that there was no on-site groundwater contaminant source.

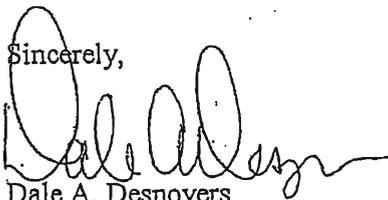
The previous work performed under the above referenced consent order has addressed all PCB sources. Additionally, groundwater has not been impacted by the site, and, as the result of five (5) years of groundwater monitoring, both on and off site, it has also determined that the site is not the source of low level 1,1,1-trichloroethane detected in the area. The deed restrictions required by the ROD have been imposed to minimize exposures to subsurface soils containing elevated PAHs.

In 2004, an additional investigation of the site failed to identify a source area or consequential amounts of contamination. The low levels of PAHs and PCBs detected in soils on site are addressable in a site management plan.

In summary, as a result of prior remedial activities and the data generated from previous investigations, there is no contaminant source area and no amount of contamination present on this site to provide a reasonable basis to believe that contamination or the potential presence of contamination may complicate the reuse or redevelopment of the site.

This denial constitutes the Department's final determination on the application.

Sincerely,



Dale A. Desnoyers

Director

Division of Environmental Remediation

cc: ~~Munesh Patel, B. Putzig, J. Hausbeck, R. Knizek, T. Schneider~~

- S. Ervolina
- R. Knizek
- B. Putzig
- T. Schneider
- D. Christian
- J. Charles
- J. Hausbeck
- E. Armater

APPENDIX B

Baseline Hydraulic Water Model Results

Junctions (Base)				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)

Junctions (Base)				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J-3	0	1,130.00	1,144.08	6.09
J54	0	1,130.00	1,144.08	6.09
J-133	0.1	1,080.00	1,144.07	27.71
J-137	0.1	1,060.00	1,144.07	36.36
J-32	0.1	1,060.00	1,144.08	36.36
J46	0	1,060.00	1,144.08	36.36
J52	0	1,060.00	1,144.08	36.36
J50	0	1,050.00	1,144.08	40.68
J-4	0	1,040.00	1,144.08	45.01
J-7	0	1,040.00	1,144.08	45.01
J44	0	1,040.00	1,144.08	45.01
J-135	0.1	1,025.00	1,144.07	51.49
J-136	0.1	1,025.00	1,144.07	51.49
J72	0.1	1,025.00	1,144.07	51.49
J70	0.1	1,020.00	1,144.07	53.65
J-152	0.12	1,222.00	1,347.22	54.15
J-33	0.1	1,017.50	1,144.08	54.74
J-134	0.1	1,015.00	1,144.07	55.82
J-31	0.1	1,015.00	1,144.08	55.82
J-144	0.1	1,013.00	1,144.07	56.68
J-153	0.1	1,215.00	1,347.16	57.15
J-128	0.1	1,010.00	1,144.07	57.98
J-127	0.1	995	1,144.07	64.46
J-14	0.1	995	1,144.08	64.47
J-29	0.1	995	1,144.08	64.47
J100	0	995	1,144.08	64.47
J48	0	995	1,144.08	64.47
J-30	0.1	993	1,144.07	65.33
J-150	0.1	1,195.00	1,347.29	65.85
J-131	0.1	985	1,144.07	68.79

Junctions (Base)				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J-132	0.1	985	1,144.07	68.79
J-139	0.1	985	1,144.07	68.79
J-140	0.1	985	1,144.07	68.79
J-141	0.1	985	1,144.07	68.79
J-143	0.1	985	1,144.07	68.79
J56	0	980	1,144.08	70.95
J-138	0.1	975	1,144.07	73.11
J-142	0.1	975	1,144.07	73.11
J-120	0.1	970	1,144.07	75.28
J-23	0.1	969.5	1,144.08	75.49
J40	0.1	969	1,144.07	75.71
J-126	0	967	1,144.07	76.57
J-118	0.1	965	1,144.07	77.44
J-119	0.1	965	1,144.07	77.44
J-121	0.1	962	1,144.07	78.73
J-22	0	959.5	1,144.08	79.82
J-122	0.1	955	1,144.07	81.76
J-158	0	951	1,144.08	83.49
J-117	0.1	950	1,144.07	83.92
J-123	0.1	950	1,144.07	83.92
J-124	0.1	950	1,144.07	83.92
J-125	0.1	950	1,144.07	83.92
J-11	0	950	1,144.08	83.93
J-12	0	950	1,144.08	83.93
J-157	0	950	1,144.08	83.93
J-8	0	950	1,144.08	83.93

Junctions (Base)				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J200	0.04	949.5	1,144.07	84.14
J-88	0.11	948.5	1,144.07	84.57
J202	0.01	947.5	1,144.07	85
J204	0.04	947	1,144.07	85.22
J-116	0.1	946	1,144.07	85.65
J-44	0.08	945	1,144.08	86.09
J-37	0.08	944.5	1,144.08	86.3
J-60	0.08	944.5	1,144.08	86.3
J-61	0.08	944.5	1,144.08	86.3
J-161	0	944	1,144.08	86.52
J-21	0.08	944	1,144.08	86.52
J-40	0.08	944	1,144.08	86.52
J-45	0.08	944	1,144.08	86.52
J-59	0.08	944	1,144.08	86.52
J184	0.04	944	1,144.07	86.52
J42	0.08	944	1,144.08	86.52
J-39	0	943	1,144.08	86.95
J-41	0.08	943	1,144.08	86.95
J-42	0	943	1,144.08	86.95
J-43	0.08	943	1,144.08	86.95
J-47	0.08	943	1,144.08	86.95
J-48	0.08	943	1,144.08	86.95
J126	0.04	943	1,144.07	86.95
J226	0.04	943	1,144.07	86.95
J246	0	943	1,144.08	86.95
J249	0	943	1,144.08	86.95
J251	0	943	1,144.08	86.95
J-63	0.08	942.5	1,144.08	87.17
J-65	0.08	942.5	1,144.08	87.17
J238	0	942.5	1,144.08	87.17
J242	0	942.5	1,144.08	87.17
J-115	0.1	942	1,144.07	87.38
J-156	0	942	1,144.08	87.38
J-72	0	942	1,144.07	87.38
J-73	0	942	1,144.07	87.38
J-79	0	942	1,144.07	87.38
J-81	2.56	942	1,144.07	87.38
J14	0	942	1,144.07	87.38

Junctions (Base)				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J16	0	942	1,144.07	87.38
J18	0.08	942	1,144.07	87.38
J-159	0	942	1,144.08	87.39
J-160	0	942	1,144.08	87.39
J-162	0	942	1,144.08	87.39
J-149	0.1	1,145.00	1,347.40	87.52
J-130	0	941.5	1,144.07	87.6
J-71	0	941.5	1,144.07	87.6
J142	0.04	941	1,144.07	87.81
J-20	0.08	941	1,144.08	87.82
J-49	0.08	941	1,144.07	87.82
J-50	0.08	941	1,144.07	87.82
J-69	0.08	941	1,144.07	87.82
J-70	0.08	941	1,144.07	87.82
J236	0	941	1,144.07	87.82
J240	0	941	1,144.07	87.82
J82	0.08	941	1,144.08	87.82
J92	0.08	941	1,144.07	87.82
J94	0.08	941	1,144.07	87.82
J-113	0.1	940.5	1,144.07	88.03
J-106	0.1	940	1,144.07	88.25
J-129	0.1	940	1,144.07	88.25
J-164	0	940	1,144.07	88.25
J-165	0.08	940	1,144.07	88.25
J-166	0.08	940	1,144.08	88.25
J-167	0.08	940	1,144.07	88.25
J-57	0.08	940	1,144.07	88.25
J-64	0.08	940	1,144.07	88.25
J-80	2.56	940	1,144.07	88.25
J162	0.01	940	1,144.07	88.25
J218	0.04	940	1,144.07	88.25
J232	0	940	1,144.07	88.25

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
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Junctions (Base)				
1234	0	940	1,144.07	88.25
J84	0.08	940	1,144.07	88.25
J86	0.08	940	1,144.07	88.25
J-	0.1	939.5	1,144.07	88.46
J-51	0.08	939.5	1,144.07	88.46
J-52	0.08	939.5	1,144.07	88.46
J-53	0.08	939.5	1,144.07	88.46
J-	0.1	939	1,144.07	88.68
107	0.1	939	1,144.07	88.68
J-54	0.08	939	1,144.07	88.68
J-55	0.08	939	1,144.07	88.68
J-74	0.08	939	1,144.07	88.68
J128	0.04	939	1,144.07	88.68
J150	0.04	939	1,144.07	88.68
J174	0.04	939	1,144.07	88.68
J176	0.43	939	1,144.07	88.68
J180	0.04	939	1,144.07	88.68
J182	0.04	939	1,144.07	88.68
J-	0.1	938.5	1,144.07	88.89
109	0.1	938.5	1,144.07	88.89
J-	0.1	938.5	1,144.07	88.9
108	0.1	938.5	1,144.07	88.9
J-	0.1	938.5	1,144.07	88.9
110	0.1	938.5	1,144.07	88.9
J64	0.1	938	1,144.02	89.09
J-	0.26	938	1,144.07	89.11
100	0.26	938	1,144.07	89.11
J-	0.1	938	1,144.07	89.11
104	0.1	938	1,144.07	89.11
J-	0.1	938	1,144.07	89.11
105	0.1	938	1,144.07	89.11
J-	0.1	938	1,144.07	89.11
114	0.1	938	1,144.07	89.11
J-62	0.08	938	1,144.08	89.11
J-67	0.08	938	1,144.07	89.11
J-77	0	938	1,144.07	89.11
J-89	2.56	938	1,144.07	89.11
J-90	2.56	938	1,144.06	89.11
J-98	0.1	938	1,144.07	89.11
J-99	0.04	938	1,144.07	89.11
J108	0	938	1,144.07	89.11
J196	0.04	938	1,144.07	89.11

Junctions (Base)				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J198	0.04	938	1,144.07	89.11
J20	0.19	938	1,144.07	89.11
J216	0.01	938	1,144.07	89.11
J22	0.08	938	1,144.07	89.11
J24	0.19	938	1,144.07	89.11
J26	0.08	938	1,144.07	89.11
J-101	0.1	937.5	1,144.07	89.33
J-75	0.08	937.5	1,144.07	89.33
J-76	0.08	937.5	1,144.07	89.33
J-78	0	937.5	1,144.07	89.33
J-91	0.1	937.5	1,144.07	89.33
J-92	0.1	937.5	1,144.07	89.33
J74	0.1	937.5	1,144.07	89.33
J-95	0.1	937	1,144.07	89.54
J-96	0.1	937	1,144.07	89.54
J-97	0	937	1,144.07	89.54
J118	0.04	937	1,144.07	89.54
J12	0.1	937	1,144.07	89.54
J120	0.01	937	1,144.07	89.54
J124	0.04	937	1,144.07	89.54
J134	0.01	937	1,144.07	89.54
J136	0.04	937	1,144.07	89.54
J138	0.04	937	1,144.07	89.54
J146	0.04	937	1,144.07	89.54
J148	0.04	937	1,144.07	89.54
J152	0.04	937	1,144.07	89.54
J156	0.04	937	1,144.07	89.54
J158	0.04	937	1,144.07	89.54
J164	0.04	937	1,144.07	89.54
J222	0.04	937	1,144.07	89.54
J224	0.01	937	1,144.07	89.54
J228	0.04	937	1,144.07	89.54
J30	0	937	1,144.07	89.55
J102	0	936.75	1,144.07	89.65
J-84	0.11	936.5	1,144.07	89.76
J-85	0	936.5	1,144.07	89.76
J104	0	936.5	1,144.07	89.76
J106	0	936.5	1,144.07	89.76
J10	0.1	936	1,144.07	89.97
J194	0.01	936	1,144.07	89.97

Junctions (Base)				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J-102	0.1	936	1,144.07	89.98
J-103	0.1	936	1,144.07	89.98
J-68	0.08	936	1,144.07	89.98
J-86	0.08	936	1,144.07	89.98
J-87	0	936	1,144.07	89.98
J140	0.04	936	1,144.07	89.98
J190	0.23	936	1,144.07	89.98
J28	0.08	936	1,144.07	89.98
J32	0.08	936	1,144.07	89.98
J34	0.08	936	1,144.07	89.98
J36	0.08	936	1,144.07	89.98
J38	0.08	936	1,144.07	89.98
J76	0	936	1,144.07	89.98
J-82	2.56	935.5	1,144.07	90.19
J-93	0.1	935	1,144.07	90.41
J-94	0.1	935	1,144.07	90.41
J208	0.01	935	1,144.07	90.41
J210	0.01	935	1,144.07	90.41
J214	0.01	935	1,144.07	90.41
J-83	0.11	934	1,144.07	90.84
J170	0.04	934	1,144.07	90.84
J186	0.04	934	1,144.07	90.84
J132	0.04	933	1,144.07	91.27
J192	0.01	933	1,144.07	91.27
J206	0.01	932	1,144.07	91.7
J212	0.01	932	1,144.07	91.7
J166	0.01	930	1,144.07	92.57
J168	0.01	930	1,144.07	92.57
J90	0	1,130.00	1,347.45	94.03
J-148	0.1	1,120.00	1,347.40	98.34
J-151	0.1	1,116.00	1,347.25	100
J-145	0.1	1,070.00	1,347.40	119.96
J-147	0.1	1,025.00	1,347.40	139.42
J-146	0.1	1,020.00	1,347.40	141.58
J68	0.1	1,013.00	1,347.40	144.61

Junctions (Base)			
ID	Demand (gpm)	Elevation (ft)	Head (ft) Pressure (psi)
J230	0	0	1,144.07 494.74
J244	0	0	1,144.08 494.74

Hydraulic Water Model with 1000gpm Load

APPENDIX C

Junction (with 1000 gpm)				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)

Junction (with 1000 gpm)				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J-3	0	1,130.00	1,144.03	6.07
J54	0	1,130.00	1,144.04	6.07
J-133	0.1	1,080.00	1,143.94	27.65
J-137	0.1	1,060.00	1,143.94	36.3
J-32	0.1	1,060.00	1,144.02	36.34
J46	0	1,060.00	1,144.03	36.34
J52	0	1,060.00	1,144.03	36.34
J50	0	1,050.00	1,144.03	40.66
J-4	0	1,040.00	1,144.03	44.98
J-7	0	1,040.00	1,144.03	44.98
J44	0	1,040.00	1,144.02	44.98
J-135	0.1	1,025.00	1,143.94	51.44
J-136	0.1	1,025.00	1,143.94	51.44
J72	0.1	1,025.00	1,143.94	51.44
J70	0.1	1,020.00	1,143.95	53.6
J-152	0.12	1,222.00	1,347.21	54.15
J-33	0.1	1,017.50	1,144.02	54.71
J-134	0.1	1,015.00	1,143.94	55.76
J-31	0.1	1,015.00	1,144.02	55.79
J-144	0.1	1,013.00	1,143.95	56.63
J-153	0.1	1,215.00	1,347.16	57.15
J-128	0.1	1,010.00	1,143.94	57.92
J-127	0.1	995	1,143.94	64.41
J-14	0.1	995	1,144.03	64.44
J-29	0.1	995	1,144.02	64.44
J100	0	995	1,144.01	64.44
J48	0	995.00	1,144.02	64.44
J-30	0.1	993.00	1,144.02	65.3
J-150	0.1	1,195.00	1,347.29	65.85
J-131	0.1	985	1,143.95	68.73

Junction (with 1000 gpm)				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J-132	0.1	985	1,143.95	68.73
J-139	0.1	985	1,143.94	68.73
J-140	0.1	985	1,143.94	68.73
J-141	0.1	985	1,143.94	68.73
J-143	0.1	985	1,143.95	68.73
J56	0	980.00	1,144.02	70.93
J-138	0.1	975.00	1,143.94	73.06
J-142	0.1	975	1,143.94	73.06
J-120	0.1	970	1,143.94	75.22
J-23	0.1	969.5	1,144.03	75.47
J40	0.1	969	1,143.92	75.64
J-126	0	967	1,143.92	76.51
J-118	0.1	965	1,143.94	77.38
J-119	0.1	965	1,143.94	77.38
J-121	0.1	962	1,143.92	78.67
J-22	0	959.5	1,144.00	79.78
J-122	0.1	955	1,143.92	81.7
J-158	0	951	1,144.02	83.47
J-117	0.1	950	1,143.92	83.86
J-123	0.1	950	1,143.92	83.86
J-124	0.1	950	1,143.92	83.86
J-125	0.1	950	1,143.92	83.86
J-11	0	950	1,144.02	83.9
J-12	0	950	1,144.02	83.9
J-157	0	950	1,144.02	83.9
J-8	0	950	1,144.02	83.9

Junction (with 1000 gpm)				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J200	0.04	949.5	1,143.91	84.07
J-88	0.11	948.5	1,143.91	84.5
J202	0.01	947.5	1,143.91	84.93
J204	0.04	947	1,143.91	85.15
J-116	0.1	946	1,143.93	85.59
J-44	0.08	945	1,143.91	86.01
J-37	0.08	944.50	1,143.99	86.26
J-60	0.08	944.5	1,144.00	86.27
J-61	0.08	944.5	1,143.99	86.27
J-40	0.08	944.00	1,143.92	86.45
J-45	0.08	944	1,143.91	86.45
J184	0.04	944	1,143.91	86.45
J-59	0.08	944	1,143.98	86.48
J42	0.08	944	1,143.98	86.48
J-161	0	944	1,144.02	86.49
J-21	0.08	944	1,144.00	86.49
J-41	0.08	943	1,143.92	86.88
J-43	0.08	943	1,143.91	86.88
J-47	0.08	943	1,143.91	86.88
J-48	0.08	943	1,143.91	86.88
J126	0.04	943	1,143.91	86.88
J226	0.04	943	1,143.91	86.88
J246	0	943	1,143.96	86.9
J-39	0	943	1,143.98	86.91
J-42	0	943	1,143.98	86.91
J249	0	943	1,143.98	86.91
J251	0	943	1,143.98	86.91
J-63	0.08	942.5	1,143.96	87.12
J-65	0.08	942.5	1,143.96	87.12
J238	0	942.5	1,143.98	87.13
J242	0	942.5	1,143.98	87.13
J-72	0	942	1,143.91	87.31
J-73	0	942	1,143.91	87.31
J-79	0	942	1,143.91	87.31
J-81	2.56	942	1,143.91	87.31
J14	0	942	1,143.91	87.31
J16	0	942	1,143.91	87.31
J18	0.08	942	1,143.91	87.31
J-	0.1	942	1,143.93	87.32

Junction (with 1000 gpm)				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
115				
J-156	0	942.00	1,143.98	87.34
J-159	0	942	1,144.02	87.36
J-160	0	942	1,144.02	87.36
J-162	0	942	1,144.02	87.36
J-149	0.1	1,145.00	1,347.40	87.52
J-71	0	941.5	1,143.91	87.53
J-130	0	941.5	1,143.93	87.54
J240	0	941	1,143.84	87.71
J-49	0.08	941	1,143.88	87.73
J236	0	941	1,143.87	87.73
J-50	0.08	941	1,143.89	87.74
J-69	0.08	941	1,143.89	87.74
J-70	0.08	941.00	1,143.91	87.74
J92	0.08	941.00	1,143.91	87.74
J94	0.08	941	1,143.91	87.74
J142	0.04	941	1,143.91	87.75
J82	0.08	941	1,143.96	87.77
J-20	0.08	941	1,144.00	87.78
J94	0.08	941	1,144.07	87.82
J-113	0.1	940.5	1,143.93	87.97
J232	100	940	1,143.80	88.13
J234	0	940	1,143.80	88.13
J86	0.08	940	1,143.81	88.14
J-167	0.08	940	1,143.90	88.17
J84	0.08	940	1,143.90	88.17
J-106	0.1	940	1,143.92	88.18
J-57	0.08	940	1,143.92	88.18
J-64	0.08	940	1,143.92	88.18
J-80	2.56	940	1,143.91	88.18
J162	0.01	940	1,143.91	88.18
J218	0.04	940	1,143.91	88.18
J-129	0.1	940.00	1,143.93	88.19

J-164	0	940	1,143.93	88.19
J-165	0.08	940	1,143.94	88.19
J-166	0.08	940	1,143.97	88.21
J-151	0.08	939.5	1,143.91	88.39
J-152	0.08	939.5	1,143.91	88.39
J-153	0.08	939.5	1,143.91	88.39
J-111	0.1	939.5	1,143.92	88.4
J-107	0.1	939	1,143.92	88.61
J-154	0.08	939	1,143.91	88.61
J-155	0.08	939	1,143.91	88.61
J-174	0.08	939	1,143.91	88.61
J-128	0.04	939	1,143.91	88.61
J-150	0.04	939	1,143.91	88.61
J-174	0.04	939	1,143.91	88.61
J-176	0.43	939	1,143.91	88.61
J-180	0.04	939	1,143.91	88.61
J-182	0.04	939	1,143.91	88.61
J-108	0.1	938.5	1,143.92	88.83
J-109	0.1	938.5	1,143.91	88.83
J-110	0.1	938.5	1,143.92	88.83
J-164	0.1	938	1,143.87	89.02
J-100	0.26	938	1,143.91	89.04
J-104	0.1	938	1,143.91	89.04
J-67	0.08	938	1,143.91	89.04
J-77	0	938	1,143.91	89.04
J-89	2.56	938	1,143.91	89.04
J-90	2.56	938	1,143.91	89.04
J-98	0.1	938	1,143.91	89.04
J-99	0.04	938	1,143.91	89.04
J-108	0	938	1,143.91	89.04
J-196	0.04	938	1,143.91	89.04
J-198	0.04	938	1,143.91	89.04
J-20	0.19	938	1,143.91	89.04

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
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Junction (with 1000 gpm)

Junction (with 1000 gpm)				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J216	0.01	938	1,143.91	89.04
J22	0.08	938	1,143.91	89.04
J24	0.19	938	1,143.91	89.04
J26	0.08	938	1,143.91	89.04
J-105	0.1	938	1,143.92	89.05
J-114	0.1	938	1,143.92	89.05
J-62	0.08	938	1,143.96	89.06
J-101	0.1	937.5	1,143.91	89.26
J-75	0.08	937.5	1,143.91	89.26
J-76	0.08	937.5	1,143.91	89.26
J-78	0	937.5	1,143.91	89.26
J-91	0.1	937.5	1,143.91	89.26
J-92	0.1	937.5	1,143.91	89.26
J74	0.1	937.50	1,143.91	89.26
J-95	0.1	937	1,143.91	89.47
J-96	0.1	937	1,143.91	89.47
J-97	0	937	1,143.91	89.47
J118	0.04	937	1,143.91	89.47
J12	0.1	937	1,143.91	89.47
J124	0.04	937	1,143.91	89.47
J134	0.01	937	1,143.91	89.47
J136	0.04	937	1,143.91	89.47
J138	0.04	937	1,143.91	89.47
J146	0.04	937	1,143.91	89.47
J148	0.04	937	1,143.91	89.47
J152	0.04	937	1,143.91	89.47
J156	0.04	937	1,143.91	89.47
J158	0.04	937	1,143.91	89.47
J164	0.04	937	1,143.91	89.47
J222	0.04	937	1,143.91	89.47
J224	0.01	937	1,143.91	89.47
J228	0.04	937	1,143.91	89.47
J120	0.01	937	1,143.91	89.48
J30	0	937	1,143.92	89.48
J102	0	936.75	1,143.92	89.59
J-84	0.11	936.5	1,143.92	89.69
J-85	0	936.5	1,143.92	89.69
J104	0	936.5	1,143.92	89.69

Junction (with 1000 gpm)				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J106	0	936.5	1,143.92	89.69
J-102	0.1	936	1,143.91	89.91
J-103	0.1	936	1,143.91	89.91
J-68	0.08	936	1,143.92	89.91
J-86	0.08	936	1,143.92	89.91
J-87	0	936	1,143.92	89.91
J10	0.1	936	1,143.91	89.91
J140	0.04	936	1,143.91	89.91
J190	0.23	936	1,143.91	89.91
J194	0.01	936	1,143.91	89.91
J28	0.08	936	1,143.92	89.91
J32	0.08	936	1,143.92	89.91
J34	0.08	936	1,143.92	89.91
J36	0.08	936	1,143.92	89.91
J38	0.08	936	1,143.92	89.91
J76	0	936	1,143.92	89.91
J-82	2.56	935.5	1,143.91	90.12
J-93	0.1	935	1,143.91	90.34
J-94	0.1	935	1,143.91	90.34
J208	0.01	935	1,143.91	90.34
J210	0.01	935	1,143.91	90.34
J214	0.01	935	1,143.91	90.34
J-83	0.11	934	1,143.91	90.77
J170	0.04	934	1,143.91	90.77
J186	0.04	934	1,143.91	90.77
J132	0.04	933	1,143.91	91.2
J192	0.01	933	1,143.91	91.2
J206	0.01	932	1,143.91	91.64
J212	0.01	932	1,143.91	91.64
J166	0.01	930	1,143.91	92.5
J168	0.01	930	1,143.91	92.5
J90	0	1,130.00	1,347.45	94.03
J-148	0.1	1,120.00	1,347.40	98.33
J-151	0.1	1,116.00	1,347.24	100
J-145	0.1	1,070.00	1,347.40	119.96
J-147	0.1	1,025.00	1,347.40	139.42

J-146	0.1	1,020.00	1,347.40	141.58
J68	0.1	1,013.00	1,347.40	144.6
J230	0	0	1,143.92	494.67
J244	0	0	1,143.98	494.69

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
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Junction (with 1000 gpm)

**Differences in Pressures between Baseline and
Proposed 1000gpm Loading**

APPENDIX D

Junction	Base Pressure (psi)	1000 gpm pressure (psi)	Difference in pressures
J-3	6.09	6.07	0.02
J54	6.09	6.07	0.02
J-133	27.71	27.65	0.06
J-137	36.36	36.3	0.06
J-32	36.36	36.34	0.02
J46	36.36	36.34	0.02
J52	36.36	36.34	0.02
J50	40.68	40.66	0.02
J-4	45.01	44.98	0.03
J-7	45.01	44.98	0.03
J44	45.01	44.98	0.03
J-135	51.49	51.44	0.05
J-136	51.49	51.44	0.05
J72	51.49	51.44	0.05
J70	53.65	53.6	0.05
J-152	54.15	54.15	0
J-33	54.74	54.71	0.03
J-134	55.82	55.76	0.06
J-31	55.82	55.79	0.03
J-144	56.68	56.63	0.05
J-153	57.15	57.15	0
J-128	57.98	57.92	0.06
J-127	64.46	64.41	0.05
J-14	64.47	64.44	0.03
J-29	64.47	64.44	0.03
J100	64.47	64.44	0.03
J48	64.47	64.44	0.03
J-30	65.33	65.3	0.03
J-150	65.85	65.85	0
J-131	68.79	68.73	0.06
J-132	68.79	68.73	0.06
J-139	68.79	68.73	0.06
J-140	68.79	68.73	0.06
J-141	68.79	68.73	0.06
J-143	68.79	68.73	0.06
J56	70.95	70.93	0.02
J-138	73.11	73.06	0.05
J-142	73.11	73.06	0.05
J-120	75.28	75.22	0.06
J-23	75.49	75.47	0.02
J40	75.71	75.64	0.07
J-126	76.57	76.51	0.06
J-118	77.44	77.38	0.06
J-119	77.44	77.38	0.06
J-121	78.73	78.67	0.06

J-22	79.82	79.78	0.04
J-122	81.76	81.7	0.06
J-158	83.49	83.47	0.02
J-117	83.92	83.86	0.06
J-123	83.92	83.86	0.06
J-124	83.92	83.86	0.06
J-125	83.92	83.86	0.06
J-11	83.93	83.9	0.03
J-12	83.93	83.9	0.03
J-157	83.93	83.9	0.03
J-8	83.93	83.9	0.03
J200	84.14	84.07	0.07
J-88	84.57	84.5	0.07
J202	85	84.93	0.07
J204	85.22	85.15	0.07
J-116	85.65	85.59	0.06
J-44	86.09	86.01	0.08
J-37	86.3	86.26	0.04
J-60	86.3	86.27	0.03
J-61	86.3	86.27	0.03
J-161	86.52	86.45	0.07
J-21	86.52	86.45	0.07
J-40	86.52	86.45	0.07
J-45	86.52	86.48	0.04
J-59	86.52	86.48	0.04
J184	86.52	86.49	0.03
J42	86.52	86.49	0.03
J-39	86.95	86.88	0.07
J-41	86.95	86.88	0.07
J-42	86.95	86.88	0.07
J-43	86.95	86.88	0.07
J-47	86.95	86.88	0.07
J-48	86.95	86.88	0.07
J126	86.95	86.9	0.05
J226	86.95	86.91	0.04
J246	86.95	86.91	0.04
J249	86.95	86.91	0.04
J251	86.95	86.91	0.04
J-63	87.17	87.12	0.05
J-65	87.17	87.12	0.05
J238	87.17	87.13	0.04
J242	87.17	87.13	0.04
J-115	87.38	87.31	0.07
J-156	87.38	87.31	0.07
J-72	87.38	87.31	0.07
J-73	87.38	87.31	0.07
J-79	87.38	87.31	0.07

J150	88.68	88.61	0.07
J128	88.68	88.61	0.07
J-74	88.68	88.61	0.07
J-55	88.68	88.61	0.07
J-54	88.68	88.61	0.07
J-107	88.68	88.4	0.28
J-53	88.46	88.39	0.07
J-52	88.46	88.39	0.07
J-51	88.46	88.39	0.07
J-111	88.46	88.21	0.25
J86	88.25	88.19	0.06
J84	88.25	88.19	0.06
J234	88.25	88.19	0.06
J232	88.25	88.18	0.07
J218	88.25	88.18	0.07
J162	88.25	88.18	0.07
J-80	88.25	88.18	0.07
J-64	88.25	88.18	0.07
J-57	88.25	88.18	0.07
J-167	88.25	88.17	0.08
J-166	88.25	88.17	0.08
J-165	88.25	88.14	0.11
J-164	88.25	88.13	0.12
J-129	88.25	88.13	0.12
J-106	88.25	87.97	0.28
J-113	88.03	87.82	0.21
J94	87.82	87.78	0.04
J92	87.82	87.77	0.05
J82	87.82	87.75	0.07
J240	87.82	87.74	0.08
J236	87.82	87.74	0.08
J-70	87.82	87.74	0.08
J-69	87.82	87.74	0.08
J-50	87.82	87.74	0.08
J-49	87.82	87.73	0.09
J-20	87.82	87.73	0.09
J142	87.81	87.71	0.1
J-71	87.6	87.54	0.06
J-130	87.6	87.53	0.07
J-149	87.52	87.52	0
J-162	87.39	87.36	0.03
J-160	87.39	87.36	0.03
J-159	87.39	87.36	0.03
J18	87.38	87.34	0.04
J16	87.38	87.32	0.06
J14	87.38	87.31	0.07
J-81	87.38	87.31	0.07

J174	88.68	88.61	0.07
J176	88.68	88.61	0.07
J180	88.68	88.61	0.07
J182	88.68	88.61	0.07
J-109	88.89	88.61	0.28
J-108	88.9	88.83	0.07
J-110	88.9	88.83	0.07
J64	89.09	88.83	0.26
J-100	89.11	89.02	0.09
J-104	89.11	89.04	0.07
J-105	89.11	89.04	0.07
J-114	89.11	89.04	0.07
J-62	89.11	89.04	0.07
J-67	89.11	89.04	0.07
J-77	89.11	89.04	0.07
J-89	89.11	89.04	0.07
J-90	89.11	89.04	0.07
J-98	89.11	89.04	0.07
J-99	89.11	89.04	0.07
J108	89.11	89.04	0.07
J196	89.11	89.04	0.07
J198	89.11	89.04	0.07
J20	89.11	89.04	0.07
J216	89.11	89.04	0.07
J22	89.11	89.04	0.07
J24	89.11	89.05	0.06
J26	89.11	89.05	0.06
J-101	89.33	89.06	0.27
J-75	89.33	89.26	0.07
J-76	89.33	89.26	0.07
J-78	89.33	89.26	0.07
J-91	89.33	89.26	0.07
J-92	89.33	89.26	0.07
J74	89.33	89.26	0.07
J-95	89.54	89.26	0.28
J-96	89.54	89.47	0.07
J-97	89.54	89.47	0.07
J118	89.54	89.47	0.07
J12	89.54	89.47	0.07
J120	89.54	89.47	0.07
J124	89.54	89.47	0.07
J134	89.54	89.47	0.07
J136	89.54	89.47	0.07
J138	89.54	89.47	0.07
J146	89.54	89.47	0.07
J148	89.54	89.47	0.07
J152	89.54	89.47	0.07

J156	89.54	89.47	0.07
J158	89.54	89.47	0.07
J164	89.54	89.47	0.07
J222	89.54	89.47	0.07
J224	89.54	89.47	0.07
J228	89.54	89.47	0.07
J30	89.55	89.48	0.07
J102	89.65	89.48	0.17
J-84	89.76	89.59	0.17
J-85	89.76	89.69	0.07
J104	89.76	89.69	0.07
J106	89.76	89.69	0.07
J10	89.97	89.69	0.28
J194	89.97	89.91	0.06
J-102	89.98	89.91	0.07
J-103	89.98	89.91	0.07
J-68	89.98	89.91	0.07
J-86	89.98	89.91	0.07
J-87	89.98	89.91	0.07
J140	89.98	89.91	0.07
J190	89.98	89.91	0.07
J28	89.98	89.91	0.07
J32	89.98	89.91	0.07
J34	89.98	89.91	0.07
J36	89.98	89.91	0.07
J38	89.98	89.91	0.07
J76	89.98	89.91	0.07
J-82	90.19	89.91	0.28
J-93	90.41	90.12	0.29
J-94	90.41	90.34	0.07
J208	90.41	90.34	0.07
J210	90.41	90.34	0.07
J214	90.41	90.34	0.07
J-83	90.84	90.34	0.5
J170	90.84	90.77	0.07
J186	90.84	90.77	0.07
J132	91.27	90.77	0.5
J192	91.27	91.2	0.07
J206	91.7	91.2	0.5
J212	91.7	91.64	0.06
J166	92.57	91.64	0.93
J168	92.57	92.5	0.07
J90	94.03	92.5	1.53
J-148	98.34	94.03	4.31
J-151	100	98.33	1.67

[Redacted]

Tables 2-1A, 2-2A

APPENDIX E

MALCOLM
PIRRIE

TABLE 2-1A
SUMMARY OF ANALYTICAL RESULTS - WESTERN PERIMETER SURFACE SOIL
REMEDIAL INVESTIGATION REPORT
FORMER INGERSOLL-RAND FOUNDRY SITE
PAINTED POST, NEW YORK

Sample Location Sampling Depth (bgs) Collection Date	NYSDEC TAGM 4046 ⁽¹⁾	Urban Background Concentrations ⁽²⁾⁽³⁾	MW-8B 0-2" 10/4/2004	MW-9B 0-2" 9/30/2004	MW-10B 0-2" 9/29/2004	SB-EN-01 0-2" 9/30/2004	SB-EN-02 0-2" 9/30/2004	SB-EN-03 0-2" 10/1/2004	SB-EN-04 0-2" 10/1/2004
Percent Solids	NA	NA	78.7	96.6	82.3	90.7	75.2	83	79.4
pH	NA	NA	6.08	6.5	6.39	6.87	6.81	7.11	6.03
Aluminum	SB	33000	10,600	1,740	10,300	4,210	9,250	4,740	11,700
Antimony	SB	N/A				1.4 J	3.5 J	1.4 J	
Arsenic	7.5 or SB	3 - 12	6.5 J		6.2	3.4	6.6	3.3	6.8
Barium	300 or SB	15 - 600	128	9.9 J	138	49.2	114	56.2	141
Beryllium	0.16 or SB	0 - 1.75	0.041 J		0.33 J		0.1 J	0.04 J	0.38 J
Cadmium	1 or SB	0.1 - 1	0.27 J	0.5 J	0.55 J	0.49 J		0.59 J	0.56 J
Calcium	SB	130 - 35,000	1,490	232 J	2,820	2,500	3,910	1,650	1,400
Chromium	10 or SB	1.5 - 40	14.1 J	3	13.5	19.1	22.3	19.3	15.6
Cobalt	30 or SB	2.5 - 60	8.3 J	7 J	7.8 J	6.9 J	7.9 J	5 J	8.7 J
Copper	25 or SB	1 - 50	14.9 J	3.2 J	16.3	25.8		29.6	14.8
Iron	2000 or SB	2,000 - 550,000	19,600	2,620	18,600	14,000	19,200	13,300	20,900
Lead	400 ⁽⁴⁾	200-500	22.4 J	136 J	25.9 J	117 J	365 J	57.9 J	25.1 J
Magnesium	SB	100 - 5,000	2,910	286 J	2,820 J	1,090 J	1,660 J	1,550 J	2,980 J
Manganese	SB	50 - 5,000	558	38.8	608	388	618	312	626
Mercury	0.1	0.001 - 0.2	0.04 B	0.01 J	0.04 J	0.04 J		0.05 J	0.05 J
Nickel	13 or SB	0.5 - 25	10.7	5 J	18.6	16.1	24.8	21.9	21.1
Potassium	SB	8,500 - 43,000	1,150 J	158 J	1,150 J	527 J	935 J	588 J	1,050 J
Sodium	SB	6,000 - 8,000	50.7 J	33.5 J	88.9 J	79.7 J	118 J	93.6 J	89.6 J
Vanadium	150 or SB	1 - 300	15.9	3.3 J	16	8.8 J	16.4	8.5 J	16.8
Zinc	20 or SB	9 - 50		9.5 J		48.6 J			
All Pesticides	NA	NA							
Total Pesticides	10	NA							
Arochlor-1260	NA	NA				370	2400	130	
Total PCBs	1000	NA				370		130	

Notes: See Page 3

MALCOLM
PIRNE

TABLE 2-1A
SUMMARY OF ANALYTICAL RESULTS - WESTERN PERIMETER SURFACE SOIL
REMEDIAL INVESTIGATION REPORT
FORMER INGERSOLL-RAND FOUNDRY SITE
PAINTED POST, NEW YORK

Sample Location Sampling Depth (bgs) Collection Date	NYSDEC TAGM 4046 ⁽¹⁾	Urban Background Concentration ⁽²⁾⁽³⁾	MW-8B 0-2" 10/4/2004	MW-9B 0-2" 9/30/2004	MW-10B 0-2" 9/29/2004	SB-EN-01 0-2" 9/30/2004	SB-EN-02 0-2" 9/30/2004	SB-EN-03 0-2" 10/1/2004	SB-EN-04 0-2" 10/1/2004
2-Methylnaphthalene	36,400	NA				95 J	150 J	59 J	
Acenaphthylene	41,000	NA				130 J			
Anthracene	50,000	NA				92 J			
Benzo(a)anthracene	224	169 - 59,000	120 J						
Benzo(a)pyrene	61	165 - 220		48 J					
Benzo(b)fluoranthene	1100	15,000 - 62,000	230 J	60 J		830		780	480
Benzo(g,h,i)perylene	50,000	900 - 47,000	220 J	66 J		1,000	5,500	680	380 J
Benzo(k)fluoranthene	1100	300 - 26,000	170 J	52 J		610		550	330 J
Bis(2-ethylhexyl)phthalate	50,000	NA		140 J	42 J	100 J	150 J	51 J	66 J
Chrysene	400	251 - 640	180 J	48 J					380 J
Dibenz(a,h)anthracene	14	NA							
Di-n-butylphthalate	8100	NA		37 J		130 J		71 J	
Fluoranthene	50,000	200 - 166,000	140 J	49 J		690	2,800	480	320 J
Indeno(1,2,3-cd)pyrene	3200	8,000 - 61,000	180 J	51 J		730		590	320 J
Naphthalene	13,000	NA				100 J	250 J	74 J	
Phenanthrene	50,000	NA				460	980 J	210 J	84 J
Pyrene	50,000	145 - 147,000	150 J	40 J		940	2,500	520	280 J
Total BaP Equivalent ⁽⁴⁾	NA	NA	304	60	0	1,748	6,495	1,073	604
Total SVOCs	500,000 ⁽⁵⁾	NA	1,637	591	42	9,527	39,030	6,025	3,400
Acetone	200	NA		4 J					
Cyclohexane	NA	NA	2 J					1 J	
Methyl Acetate	NA	NA	3 J						
Methylene chloride	100	NA							
Total VOCs	10,000	NA	5	4				1	

Notes: See Page 3



TABLE 2.1A
SUMMARY OF ANALYTICAL RESULTS - WESTERN PERIMETER SURFACE SOIL
REMEDIAL INVESTIGATION REPORT
FORMER INGERSOLL-RAND FOUNDRY SITE
PAINTED POST, NEW YORK

Notes:

Only those analytes detected at a minimum of one location are shown.
Blank space indicates analyte was not detected.
Shaded concentrations exceed TAGM values for Pest/PCBs, SVOCs, and VOCs.
Shaded TAL Inorganic Analytes exceed upper range of Eastern USA Background Concentrations and TAGM values.
Bald/Italic SVOC results exceed upper limit of Urban Soils Background Ranges for PAHs.
(1) New York State Dept. of Environmental Conservation TAGM 4046, Recommended Soil Cleanup Objectives, Dec. 2000.
(2) TAL Inorganic Analytes from Eastern USA Background as shown in New York State Dept. of Environmental Conservation TAGM 4046, Dec. 2000.
(3) SVOCs background from Background Soil Concentrations of Poly Aromatic Hydrocarbons (PAHs), Urban Soils (U.S. and other), Toxicological Profile for PAHs, US Dept. of Health and Human Services, August 1995.
(4) USEPA Region 3 Soil Screening Level.
(5) Total Bar equivalent - Benzene (a) pyrene equivalent is calculated by multiplying the following individual PAH concentrations by their multiplier (b) and summing the results.
Benzene (a) Pyrene (1.00); Dibenz(a,h) anthracene (1.00); Benzene (a) Anthracene (0.10); Benzene (b) Fluoranthene (0.10); Idene (1,2,3-*cd*) pyrene (0.10); Benzene (k) Fluoranthene (0.01); Chrysene (0.01).
*** - The Soil Cleanup Objective refers to the sum of these compounds.
D - Indicates result from subsequent run at 5x dilution.
J - Indicates and estimated value.

APPENDIX F
Table 2-1B

MALCOLM
PIRRIE

TABLE 2-1B
SUMMARY OF ANALYTICAL RESULTS - SB-EN-02 SURFACE SOIL SAMPLES
FORMER INGERSOLL-RAND FOUNDRY SITE
PAINTED POST, NEW YORK

Sample Location Sampling Depth (ft. bgs) Collection Date	Proposed Site Specific Action Level (SSAL)	PPSS-01 11/16/2004	PPSS-02 11/16/2004	PPSS-03 11/16/2004	PPSS-04 1/16/2004	PPSS-DUP (PPSS-04) 11/16/2004	PPSS-05 11/16/2004
Percent Solids (%)	NA	85.7	73.1	80.6	43	44.9	87.6
pH (s.u.)	NA	7.09	7.24	7.46	7.18	7.11	6.94
Aroclor-1260	NA	98		72	7700	.4500	730
Total PCBs (Surface - 1.0')	1,000	98		72			730

Notes:
 Samples collected at the surface, at evenly spaced intervals on a 100 ft. radius around soil boring SB-EN-02.
 Only those analytes detected at a minimum of one location are shown.
 Blank space indicates analyte was not detected.
 Shaded concentrations exceed Site Specific Action Levels (SSAL'S).