



State of New Jersey

Christine Todd Whitman
Governor

Department of Environmental Protection

Robert C. Shinn, Jr.
Commissioner

JAN 07 2001

David Worrell
1445 Parkway Ave
Trenton, NJ 08628

Re: Delphi Interior and Lighting Co. (GM)
Trenton City, Mercer County
ISRA Case #E97070
Interim Remedial Investigation Report dated February 1999
Remedial Investigation Workplan Addendum dated: May 26, 1999

Dear Mr. Worrell:

Pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection (NJDEP) by the Industrial Site Recovery Act (ISRA) and delegated to the Chief of the Bureau of Environmental Evaluation, Cleanup and Responsibility Assessment (BEECRA) pursuant to N.J.S.A. 13:1B-4, the referenced Remedial Investigation Workplan (/RIW) is hereby approved as conditioned below:

I Soil Conditions

The original RIW (Sept. 1993) was conditionally approved Dec. 1993. The RIW was implemented in Feb. 1994. Subsequent RI activities were performed in connection with a MOA (Feb. 1996). Four Areas of Concern (AOCs) were addressed, with work completed 1997. An interim RI report has now been presented outlining the results from investigations performed in July through Oct. 1998. In addition GM has provided responses to the 1/27/98 NJDEP conditional approval letter as well as proposals for an additional remedial investigation phase.

The purpose of the remedial investigation workplan is to determine the nature and extent of contamination from onsite releases in areas of concern identified at this site.

It should also be noted that the Case Manager has been informed verbally the buildings on-site will be removed. The proposals provided in the above referenced reports assume that the buildings will remain in place. The above reports have been reviewed as written. If necessary, General Motors may request modifications to the requirements found below. The Department will review the modifications when and if submitted.

History

Facility consists of 84 acres including a 1.1 million ft² Main Building, Power Plant, and Waste Water Treatment Plant. Operations have now ceased. The facility is still scheduled to undergo a decommissioning phase. It is unclear at this time whether or not the facility structures will remain or will be removed. This includes the Main Manufacturing Building. As such the last RI phase did not include investigation of conditions on, in, or directly beneath the buildings or structures. The assessment of these areas will be conducted during the decommissioning phase of the plant closure.

Areas of Concern

The property is divided into 11 main areas based on former operational use. An approved RI workplan was initially implemented in early 1994 by URS Consultants, prior to GM's decision to continue operations. Additionally, work was conducted within four AOCs under a MOA. The most recent phase of investigation was conducted based on the cessation of operations and the July 1997 RI workplan.

A. Area 1

Manufacturing Bldg. and East Parking Lot - The building is brick with steel supports. The floor is 6-8" of re-enforced concrete. In traffic areas a wood block floor exists over top of the concrete. There is an extensive below grade sump and trench system that had been in operation since the building was first constructed. All sumps and pits are lined with concrete and were used to direct process wastes directly to the process sewer that eventually discharged to the on-site treatment plant. All storm water discharges to Gold Run Creek at NJPDES outfalls 001, 002, and 003.

No sampling was performed in this area in 1998. This area is to be addressed during the decommissioning of the facility. Proposals were not presented within the RIW by Unit number. **For those areas that do not have a specific proposal referenced the general proposals listed at the end of the Investigation Area 1 discussion are applicable.**

1. Unit #1 Manufacturing Tool Room

This area contained the injection molding process line. All manufacturing units are surrounded by 6" deep concrete lined collection trenches. All equipment lied on concrete floors. All lube oils and liquid wastes were removed by a sump and stored in a collection tank until being disposed off-site. The encapsulated glass prep operation also was conducted in this portion of the main building. This process utilized MEK, toluene, and other solvents.

Originally all investigation had been deferred by GM to avoid disruption of facility operations. Now that operations have ceased GM will move forward with the investigation of this area.

A list of all sumps, pits, and trenches within the manufacturing building and other buildings onsite will be submitted.

2. Unit #2 Manufacturing Area

This area includes the bi-laminant extrusion line, encapsulated glass molders, extruder line, metal stamping and fabrication, Zn phosphator, and electroplating operations. Plating operations took place in this area beginning in 1948. The plating lines were set on concrete floors with collection trenches surrounding the entire unit. These trenches discharged all process waste to the industrial process sewer for on-site treatment prior to discharge to the POTW. As plating lines became obsolete the drainage structures were decontaminated and filled with concrete.

A pit filled with sediment was identified during the 1993 site investigation. The pit has been cleaned and sealed with concrete. No breaches in integrity were noted.

Oil staining was noted during the 1993 site visit in the area of the press storage area on the south side of the main building. One soil boring was advanced adjacent to the area of the former press (SB-1-SO-1). A sample was collected at 6" from within area of stained soil and analyzed for Total Petroleum Hydrocarbon (TPH) and Base Neutral plus library search (BN+15). The results were below residential direct contact soil cleanup criteria. Records do not indicate whether or not removal of the stained soils took place. Staining is no longer evident. No additional investigation is being performed in relation to this area.

Observations of compromises in the integrity of pit floors have been noted by plant personnel at two previously decommissioned structures. The structures include the No. 7 Hanson Plater pit and the No. 10 Hanson anodizer pit.

Approximately 5 to 10 yd³ of stained soil was removed beneath the degraded area of the No. 7 plater pit. Two soil samples were collected and reported the presence of total Cr up to 11,000ppm and Hex-Cr up to 42 ppm. No records of post-ex sampling appear to exist. Available records for the No. 10 anodizer pit do not indicate that sampling or soil removal was performed in this area. See item 15 Overall Investigation Area 1 Proposals in section I A.

a. 3000 Gal. Concrete Waste Hydraulic Oil UST

This tank was determined to be a subgrade vault sump that was decommissioned in 1988. The vault was part of a hydraulic recycling system and was not used as a waste tank. The recycling system collected leaks of hydraulic oil in the floor drains around the molders. The floor drains then led to this vault. The decommissioning process included washing the tank and associated piping with a caustic soda solution. The final rinse was then tested and found to contain 10 ppm oil. The tank and piping were sealed with concrete. Records do

not indicate that the integrity of the tank was inspected.

A single boring is proposed to be advanced at the closest accessible location near the vault (Column G-12). Continuous soil sampling with field screening (FS) will be performed to 10 ft. Samples will be selected for TPH and Polychlorinated Biphenyls (PCB) analysis based on the FS results.

This proposal is acceptable. The invert depth of the vault shall be documented. One sample shall be collected immediately below the invert depth regardless of the FS results for this depth. In addition to the parameters proposed, Polycyclic Aromatic Hydrocarbons (PAHs) shall also be analyzed.

3. *Unit #3* Manufacturing And Shipping Area

This area was used for both ELPO powder paint operations and the electrostatic painting operations. Both systems utilized solvents (toluene, xylene, etc.) for paint mixing and were completely contained.

This area is proposed to be reinspected in the future.

4. *Unit #4* Office Areas

No areas of concern were noted in this area.

5. *Unit #5* South Extension West

This area was used for plating, dichlorobenzene degreasing, Zn reclamation, Zn diecasting and remelting. Immediately adjacent to the diecast equipment are the shaker pits and shaker sump that collected process waste and channeled it towards the industrial process sewer.

The process sewer runs through this area. One access port was visually inspected during a 1993 site inspection. At that time, a continuous moderate velocity flow of wastewater was observed.

No additional information specific to this area was provided at this time. See item 15 Overall Investigation Area 1 Proposals in section I A.

6. *Unit #6* South Extension East

This area is considered the solution storage area which includes six above ground storage tanks containing copper cyanide, chromic acid, acid copper, semi-brite Ni solution, Bite Ni, and Caustics. This area includes secondary containment, which consists of a concrete lined

trench. The grated floor drains were noted to contain liquid and sediment. The floor within the containment area was also noted to be visibly corroded.

One boring is proposed to be advanced in an area of the degraded concrete floor. The boring will be advanced to 10 ft. A minimum of one sample will be collected for Priority Pollutant Metals (PPm) and Cyanide (CN) analysis. The floor slab, containment structures, sumps and trenches within this area will be cleaned and inspected. Sampling will be conducted in the vicinity of these structures if determined to be necessary.

The above proposal is conditionally acceptable. The sample depth was not specified. One sample shall be collected immediately beneath the concrete floor in the degraded area. The sample should also be analyzed for pH

7. Unit #7 Receiving Area

This area was formerly used for CN and Zn electroplating, Zn phosphate and chromium washing, paint applications, and chromic acid stripping. It was later used for storage of purchased parts, plastics, molds, Al and steel coils.

Several concrete lined recycling pits are located here. Adjacent to these bins lies a rail-line with various pits located along its length. To the far north of this area, in the front of the building, exists a loading dock area with a trench.

The pits observed adjacent to the railroad spur have been identified as valve pits for the city water line that runs from north to south through this building. The line was originally outside the building, but was covered when the building was extended.

a. Receiving Area Trench

This area will be addressed as outlined under item 15 Overall Investigation Area 1 Proposals in section I. A for all of the facility sumps, pits, and trenches.

8. Power Substations

a. Manufacturing Building Stations

Substations #1, 2, 3, 8, 9, and 11A/11B are located on the building roof. No spills or leakage has been noted to have been associated with these units with the exception of unit #2. No further action was conditionally approved for these units provided that samples collected from substation #2 were biased toward the staining noted during the 1993 site visit. GM has confirmed that the samples from substation #2 were collected from the area of staining.

In addition to the spill at unit #2, it was noted in the 1995 PA that a spill of PCB oil was noted on the concrete deck of substation #11B. The spill was contained and cleaned up.

Substations #4, 5, 12, and 15 are located within the manufacturing building interior. Wipe sample results for substation #5 indicated that leakage/spillage had occurred.

It is proposed that all pads where PCBs were detected will be cleaned and remediated. This specifically includes the underlying pads and associated equipment at substations 5 and 11B. This will occur during the decommissioning of the facility. No other spills are known to have occurred.

The above proposal is acceptable at this time.

b. Exterior Substations

Substations #6, 7, 10, 13A/13B, 14, and 16 are all located outside of the manufacturing building. Substations 10, 13A/13B, and 14 contain PCBs. Substation 10 is located within an enclosed structure, on a pad covered with asphalt over a concrete sub-base. No evidence of leakage was observed. Substations 13A/13B are surrounded by a lined, concrete secondary containment system. No evidence of leakage was observed. Substation 14 is located north of the oil/water separator. One leak had been documented on Aug. 20, 1992. The spill was contained within the steel-lined containment system. Wipe samples were collected following cleanup. Residual PCBs were found to still remain. A proposal to address the PCBs in soils near substation #14 was presented within the July 1997 Remedial Investigation Report (RIW). Sampling of soils in that area was performed during the 1998 RI.

The substation and underlying pad are proposed to be removed as part of the facility decommissioning plan.

With regard to station #14, please refer to the comments under Area 8 below.

9. *Former 30,000 and Two 18,000 Gal. Dichlorobenzene Above Ground Storage Tanks (AGSTs)*

In June of 1985, these tanks were cleaned and abandoned as approved in a RCRA closure plan (3/31/91). No further action was required under ISRA as noted in the 12/17/93 NJDEP letter.

10. *Former Chlorine Storage*

This area was used for compressed gas cylinder storage. No concerns were previously identified in this area. No further action was required. Please refer to the 12/17/93 NJDEP letter.

11. *Concrete Containment Unit*

This area was noted during a 1993 site inspection. The unit contained two tank cradles. The tanks are suspected to have been removed in the 1960's. The materials stored in these former tanks include sulfuric acid and liquid caustic solution. The concrete floor of the unit was not stained but was noted to be degraded in one area. The degrading of the concrete appeared to be limited to the surface and was most likely due to a release of acid solution.

GM believes that no additional investigation is warranted, provided that a visual inspection can confirm that the underlying concrete layer is still intact. GM will request that NJDEP inspect this area and determine if sampling will still be required.

This proposal is acceptable.

12. *Trash Compactor Area*

This area includes a rail-line loading area, which was identified during the 1993 site inspection. There was extensive petroleum staining and sediment buildup in-between the rail-lines. The trench toward the rear of the compactor was noted to be receiving what appeared to be hydraulic oil, possibly emanating from the unit itself. The trench is tied into the industrial sewer system.

The stained pavement has been cleaned and the leak repaired as originally proposed and accepted (12/17/93).

As required all sumps and trenches in this vicinity will be cleaned and inspected during the facility decommissioning process. Sampling will be performed if the integrity of any structure is found to be questionable.

This proposal is acceptable.

13. *9000 Gal. Gasoline Underground Storage Tank (UST)*

A tank is suspected to be present beneath the southeast extension of the building -- beneath the solution storage room. Based on facility records it has been determined that two possible locations exist. Note: No records of removal or abandonment exist. The tank may exist between the FF and GG column lines approximately 34 ft from the south wall. It may also have been present beneath the EE column line wall.

Due to the possibility that the UST still remains in place, five soil/ground water borings along the outside of the southern wall of the solution storage room are proposed to be completed. The borings will be advanced to the top of bedrock. Two to three samples per boring are proposed. Field screening (FS) will be performed. Volatile Organic (VOC)

analysis will be based on the field screening results. Additional soil samples will be collected from at least one of the borings and analyzed for TPH analysis to evaluate the potential for releases from the adjacent sewer line. Breaches in the integrity of the solution room floor will also be investigated by these borings. Analysis to address these concerns will include Priority Pollutant Metals (PPm) and CN.

The original plan to determine the presence or absence of this tank was to remove the concrete floor within this area. The proposal noted above is an alternative plan based on the possibility that the building will remain intact for the sale of the property.

The alternative proposal is partially acceptable for addressing some of the concerns with the possible presence of this UST. The proposal however does not fully address the possibility of a leaking tank as no samples are proposed to the north of the suspected location. The proposal also does not confirm whether the tank is still present.

Whether or not a tank exists in this area should first be determined. The presence of contamination does not necessarily indicate that the tank still remains.

14. Oil Staining Adjacent to Leaking Press

This is the same area that is noted within Unit #2 as the press storage area. Please refer to the comments noted above.

15. Overall Investigation Area 1 Proposals:

a. Integrity of Building Floor Slab and Pits, Sumps, and Trenches

The Department identified the need for inspection and documentation of the integrity of all structures. GM proposes to clean and inspect all pits, sumps, and trenches at the facility – including those within outdoor paved areas. GM will remove the existing wood block floor to permit inspection of the underlying floor slab. This will also aid in locating historical structures that have since been closed. Based on information already available, several structures have been determined to warrant a subsurface investigation and are further outlined below. These structures are specifically targeted due to the potential for releases or because visual inspection is difficult or impossible.

The above proposal is acceptable. As stated in other correspondence, NJDEP should be kept up to date on the scheduling of the inspections so that a representative may be present. If the integrity of any structure is found to be questionable then soil sampling beneath the area will be necessary and shall take into account all possible materials handled.

b. Process Wastewater Sewer Lines and Manholes

These lines are constructed of terra-cotta. The invert elevations vary between 1.5 to 12.5 ft below grade depending on the location and distance from the wastewater treatment plant (WWTP). The process sewer is connected to an 18-24" diameter trunk line that runs from the building to the WWTP. The treated waste water is then discharged from the WWTP to a 24" reinforced concrete pipe which eventually leads to a discharge in Gold Run Pond.

The proposal for these areas involves the cleaning of all process sewer lines at the site and inspects all process sewer manholes. Any blockages, breaks, or leaks will be documented. The integrity of all lines will be documented. Soil borings will be advanced along each sewer line and manhole locations where the integrity is found to be in question. If cleaning does not provide conclusive information concerning the locations of potential past releases then a minimum of two borings will be advanced adjacent to each of the 8 branch lines and a minimum of 6 borings will be advanced adjacent to the main trunk line.

All borings will be advanced to the top of bedrock or to 4.0 ft below the sewer invert elevation. One sample from each boring will be collected directly below the sewer invert. The samples will be analyzed for PPM and TPH. Volatile Organic Contaminants (VOC) analysis will be added based on FS results. Cyanide will also be added for samples collected in the vicinity of the former plating operations.

The proposal to inspect these structures is conditionally acceptable. All sampling that is conducted shall also include PAHs as indicated in the 1/27/98 NJDEP letter. PCB analysis is also required on 25% of TPH samples exhibiting the highest concentrations. Also until a correlation between field screening and laboratory results is established for this site then VOCs should be analyzed at each location exhibiting a breach in integrity. Field screening should be used to bias the sample collection within each boring.

c. Storm Water and Sanitary Sewer Lines

All lines will be cleaned and inspected. No soil investigation is proposed. Samples will however be collected for VOC analysis at locations at or downstream of the systems within the northern portion of the site where the invert elevations are below the water table (WT) to determine if ground water is infiltrating the sewers.

This proposal is acceptable, provided the integrity of the lines is found to be intact. Whether or not sampling in areas where the integrity has been breached is necessary will be dependent upon the location of the line within the manufacturing area and the close proximity of other sampling locations.

d. Existing Plater #12 Pit

Evidence of degraded concrete was visible in the floor of the existing foundation for this plater. Five shallow soil samples from within the pit will be collected and analyzed for

PPm and CN. The samples will be collected at 6-12" below the base of the concrete. A boring will also be advanced along the south side of the pit for the purpose of obtaining a shallow ground water sample.

This proposal is acceptable, however PAHs should also be analyzed as stated in the 1/27/98 NJDEP letter. The samples should also be field screened with VOC analysis performed.

e. Existing Black Phosphating System and Former Plater #5

With regard to the Black Phosphating (Zinc Phosphater) system, all sumps and trenches will be cleaned and inspected. Sampling will be dependent upon the integrity of the system structures.

The plater pit #5 was closed, however the backfill material used during closure is unknown. A boring or pit will be performed within the limits of the former structure to determine the nature of the fill material. If waste or contaminated material is observed within the former pit area then the material will be sampled. The backfill material will be removed for offsite disposal and the pit will be cleaned and the integrity documented. If questionable integrity exists then a soil sample will be collected from beneath the floor and will be analyzed for PPm, CN and other parameters depending on the backfill results. A ground water sample will be collected from a boring placed near the SE corner of the plater pit. A soil sample will also be collected from this boring at a depth corresponding to the invert of the pit. The sample will be analyzed for PPm and CN.

The above strategy is conditionally acceptable. If the backfill material is removed, the proposed sample shall be biased to the worst case location. If the backfill material is to remain in place, one sample shall be collected per 50' of plater pit. The backfill material shall be sampled regardless of any visual observations recorded. Whether or not the backfill material is clean shall be determined. The backfill material shall be analyzed for PP+40, TPH, and CN. All other samples collected shall be analyzed based on these results and the contaminants handled in this area.

f. Former Platers #1 to 4, 6 to 11, and Former Zinc Barrel Plater

Platers #1 to 4 and #8 were installed on floor level decks. Platers #6, 7, 9, 10, 11, and the Zinc Barrel Plater were installed in subgrade pits. Platers #7 and 10 have already been documented to have poor integrity. No further action is apparently being proposed for platers #1 to 4 and 8. This shall be confirmed. The integrity of the floor in each of these plater areas will still need to be documented. Sampling will be required if the integrity of any of these units has been breached.

g. Plater #7

Stained soil was removed from beneath a degraded area in the pit floor. Data for two samples was discovered. Total Cr results were reported as 7100 and 11,000 ppm. Hex-Cr results were reported as 27 and 42 ppm. How, when, and where the samples were collected

is unknown. The degraded portion of the pit was noted at the east end. Facility personnel have stated that the pit was cleaned and clean backfill was used to fill in the area.

Four borings will be advanced in the east end of the pit. The borings will be advanced to bedrock. One or more samples will be collected and analyzed for PPm and CN. One sample from one boring will be collected from native soils below the backfill material.

Unless records exist indicating where the backfilled material originated, then sampling of this soil shall be conducted for PP+40, CN, and TPH. The analysis of the remaining samples proposed will be dependent upon this data. Note also that the integrity of the remainder of the pit shall be documented. GM does propose to collect a sample at the SE corner of the pit below the invert of the pit. The sample will be analyzed for PPm and CN. A ground water sample will also be collected and analyzed.

h. Plater #10

A section of this plater pit floor was also noted to be degraded from sulfuric acid spills. No records of sampling or removal of soil were found. The pit is believed to have been backfilled with clean fill. No sampling is proposed directly from the pit. GM proposes to install a single boring at the SE corner of the pit. One sample will be collected below the base of the former pit and analyzed for PPm and CN. A ground water sample is also proposed to be collected and analyzed.

The above proposal is conditionally acceptable. If data does not exist for the backfilled material then sampling shall be performed to verify the absence of contamination. If the backfill material is removed, the proposed sample shall be biased to the worst case location. If the backfill material is to remain in place, one sample shall be collected per 50' of plater pit. See comments for plater #7.

i. Plater #9

This pit was reportedly backfilled with scrap PVC body side moldings. The integrity of the pit lining is unknown. A boring will be advanced at the SE corner of the pit. One sample is proposed to be collected below the base of the former pit and analyzed for PPm and CN. A ground water sample will also be collected and analyzed.

This proposal is conditionally acceptable. If data does not exist for the backfilled material then sampling shall be performed to verify the absence of contamination. If the backfill material is removed, the proposed sample shall be biased to the worst case location. If the backfill material is to remain in place, one sample shall be collected per 50' of plater pit. See comments for plater #7.

j. Platers #6, #11, and Zinc Plater

These three pits were also subgrade. No information exists on the nature of the backfill material used. A test pit or boring will be performed at a location within the former limits

of each of these pits. In addition a boring will be advanced at the SE corner of the pit. One sample will be collected below the base of the former pit and analyzed for PPM and CN. A ground water sample will also be collected and analyzed.

This proposal is conditionally acceptable. If the backfill material is removed, the proposed sample shall be biased to the worst case location. If the backfill material is to remain in place, one sample shall be collected per 50' of plater pit. No parameters were noted for the sampling of the backfill material. As stated above PP+40, CN, and TPH shall be analyzed.

k. Scrap Metal Handling Pits

To investigate these pits, a single boring is proposed to be advanced at the south end of the pit area. One or more soil samples will be collected based on visual observations. Analysis proposed is for TPH.

The Department requires that a minimum of one boring be advanced in each individual pit to verify the integrity of each. Samples shall be biased to areas of poor integrity. At a minimum a sample shall be collected at a depth corresponding to the invert of each pit. The sample shall be analyzed for TPH, VOCs, BNs, PPM, PCBs and CN. Additional samples within each boring should be added based on visual and FS results.

l. Existing Die-Cast Area

All pits, sumps, and trenches will be cleaned and inspected. Sampling will be based on the integrity of each area.

As stated above, this strategy is acceptable.

m. Plastisol Paint and Primer Pits

These two pits are located near column A-55. They are approximately 6 ft deep and are steel lined. Due to the potential difficulty in cleaning each pit a boring will be advanced instead. The boring will be advanced at the closest accessible location near the pits. Continuous soil samples will be collected for field screening to 10 ft. One to 2 samples will be collected for VOC analysis based on the FS results.

The above proposal is acceptable, however rationale for targeting only VOCs should be provided. It would appear that BNs and metals should also be a concern in this vicinity.

n. Former Press Pits

The locations of all of these pits is uncertain at this time. GM must wait until the wood block floor is removed to determine the locations. The need for any further investigation will be determined based on inspections of the plant floor, existing pits, sumps, and trenches.

The integrity of the pits shall be determined. The nature of the backfill material shall also

be documented. As stated during the last NJDEP site visit, a percentage of the pits will need to be opened and investigated similar to what is proposed for the former plater pits and the Die-Cast pits.

o. Former Die Cast Area

There are 23 former die cast pits. Information on exact locations and the integrity of each is not available. Information on the material used to backfill these areas are also unavailable. Once the wood block floor is removed an attempt to visually locate these former areas will be made. Test pits or borings will be utilized to obtain samples of the backfill material from 4 pits. The backfill material will then be removed and the pits cleaned so that the integrity may be determined. If the integrity is in question then soil sample analysis beneath the base of the pits will be performed for TPH, Zn, and other parameters depending on the backfill analytical results. A monitoring well will be installed at the SE corner of the area. Soil samples will be collected during installation based on FS readings.

The above proposal is not acceptable. The integrity of each of these units needs to be established. Without uncovering all of the pits and removing the contents of each pit in an effort to determine the integrity, sampling beneath each pit is required. If the integrity of the pits will be established through approved methods in N.J.A.C. 7:26E, only pits with breaches in integrity will require sampling. The backfill material within each pit shall be analyzed for PP+40, CN, and TPH.

p. Former WasteWater Treatment System in De-Ion Building

This building is located at the south end of the manufacturing bldg. and was formerly the wastewater treatment area for the platers s#1, 2, and 3. The treatment system was installed in a 7.0 ft deep concrete lined pit. No records of the condition of the pit were available.

A ground water sample will be collected in this vicinity to represent the conditions of the pit.

The proposal for this area is unacceptable. The pit structure shall be investigated. Also if the pit was backfilled, this material shall also be investigated as indicated earlier. A boring may be advanced on the suspected down gradient side of the pit with samples collected below the pit invert or the backfill material can be removed to allow for a visual inspection.

B. Area 2 Above Ground Storage Tank Area and Primary Switch House

1. Former 5000 Gal. Paint Thinner AGST and Former 4000 Gal. Solvent AGST

Both tanks were installed in the 1950's and then decommissioned in 1987-88. The paint thinner tank was connected to the pump island for transfer into 55 gal. drums. The tank, pump station, and piping are all out-of service however remain in place at this time. The (Aromatic 100, MEK, toluene) tank transferred product directly to the paint room via

overhead lines. This tank was removed and replaced in 1991 by a hydraulic oil tank. Both tanks were located within a concrete containment structure. No evidence of leakage (visible staining) was noted.

This area was investigated during the 1998 RI. Two soil borings were installed in the vicinity of the piping that runs from the tanks to the pump station. The borings were located to evaluate the potential for past releases related to the former solvent tanks. Samples were collected biased toward the highest field screen readings (8-10 ft) and analyzed for TPH and VOCs. The results report BETX and TCE contamination within both borings. Note: Minimum Detection Limits (MDLs) were elevated, therefore the ND results for sample B2-2 are not acceptable. Field screening readings were recorded in this area up to 367 ppm.

Additional investigation is proposed to delineate the VOCs at both boring locations. In addition a review of historical drawings indicates that a second tank for kerosene storage was added in 1962. Also the original tank basin was lined with crushed stone and the solvent tanks were observed to have been connected to the manufacturing building by underground piping. The piping ran to a pit located at column KK-44. The piping was contained within a concrete lined trench. The trench sloped to a sump, which then drained to the main process sewer. The piping was approximately 5.0 ft below the building floor. The solvent piping then ran overhead from the pit at KK-44 to areas of the plant.

To address all concerns including those associated with the newer hydraulic oil tank a minimum of six borings will be advanced to refusal. Two soil samples from each boring will be collected from that interval with the highest FS readings. The samples will be analyzed for VOCs, TPH, and PAHs.

A proposal to remove the pipeline was previously approved by the Department. This is still recommended, although the proposal to advance additional borings in this area is also acceptable. It is acceptable to bias samples towards FS results, however in some instances it is also necessary to collect a sample at the suspected worse case location regardless of the FS results. Samples are still required immediately below the pipelines. This is required to assess whether or not the pipeline may have been the original source of contamination. Additionally, samples are necessary within the diked area, from the 18-24" interval, beneath the tanks due to the historical presence of crushed stone in this area.

The trench extending from the tank area to the building shall also be investigated as to its integrity. The boring proposal could satisfy this concern provided that samples are collected immediately below the invert depth of the trench. GM is reminded that in addition to delineation the source of the contamination shall also be determined.

2. *Liquid Propane Tank (LPG)*

NFA was accepted for this area in the 12/17/93 NJDEP letter.

a. Gas Metering House

A sump is present within this building and contains the natural gas line leading to the boiler house. Sediment observed within this sump during the 1993 site inspection was determined to be due to the backfill used after excavating a portion of the line for repair. No further action was accepted in the Departments letter dated 12/17/93.

3. *400,000 Gal. Water Tank*

This tank was installed in 1937 to supply water to the power house boilers. NFA was accepted for this area in the Department's 12/17/93 letter.

4. *Primary Switch House*

This area houses three transformers within a fenced enclosure. The area within the fence is covered with gravel. The transformers are atop a concrete platform. During the 1993 site inspection, staining was noted on the M-1 unit and on the concrete platform beneath. Drum rings were also noted on the concrete in the vicinity of this staining. Staining was noted to be present on the gravel beneath the "canisters" closest to the powerhouse.

Two soil samples (SB-2-SO-3 and 5) and one wipe sample were collected in the areas of staining. The samples were collected 0-6" below the gravel surface. The results for the M-1 area report PCB concentrations at 6 ppm and a wipe sample result of 220,000 ug/100 cm² of aroclor 1260. The area beneath the mineral oil switches reported a TPH level of 1300 ppm.

a. Transformer M-1

The Unit M-1 area was further investigated during the 1998 RI. Five shallow soil borings were advanced in this vicinity. Samples were collected from 0-6" below the surface gravel (B2-3 to 2-6) and at 4.0 ft for vertical delineation (B2-7). All samples were analyzed for BNs and PCBs. The results report PCBs at 3.4 ppm at B2-3. All other results were below residential direct contact soil cleanup criteria.

Additional investigation is proposed to be performed at B2-3. Three shallow samples (0-6") are proposed to be collected around this location. One at depth sample (2-4 ft) will be collected adjacent to B2-3. All samples will be analyzed for PCBs.

In addition the pad and transformer will be decontaminated during the facility-decommissioning phase.

The proposal to collect additional delineation samples is acceptable. If possible, complete horizontal and vertical delineation should be targeted during this next phase.

b. Area of Cinders and Slag

NJDEP raised concerns over the presence of cinders and slag along the RR tracks near the brick lined water tank. No activities were originally proposed for this area of the site. To address these concerns a composite sample (GRB2-1) was obtained from near the surface cinders/slag material. The sample was analyzed for PPM and PAHs. The results reported the presence of As and Pb above the residential direct contact soil cleanup criteria.

A minimum of three samples are proposed to be collected beneath the slag and cinders in the vicinity of GRB2-1. The samples will be analyzed for As and Pb.

The proposal to collect discrete samples from the soils beneath this material is acceptable, however additional parameters shall be analyzed. As the initial sample was a composite the discrete samples shall be analyzed for PPM and PAHs to insure that sample dilution did not occur during the initial sample collection.

B. Area 3 Power Station and Fuel Storage

The building was originally constructed in 1937 to house three coal-powered steam boilers. In 1957 the coal-powered system was replaced with oil and three above ground tanks were installed. Three gasoline underground storage tanks are also located in this area.

1. 500,000 Gal. No. 6 Oil AGST

This tank lies in direct contact with soils. Staining was noted around the steam vent as well as beneath the piping. Approximately five borings were completed during phase I in the vicinity of this tank = SB-3-SO-3, 4, 5, 7, and 8. The TPH levels ranged from ND to 1200 ppm. All PAH concentrations were below residential direct contact soil cleanup criteria. The sampling depths have been confirmed as the soil immediately underlying the gravel fill surrounding the condensate sump (1.5-2 ft) and the depth interval immediately below the invert of the sump (3-3.5 ft). The test-boring log originally noted saturated soils between 1.5 and 3.5 ft and that ground water contained oil. The sample results do not support the presence of product.

In accordance with the requirement to confirm whether a source of ground water contamination is present, sampling was performed in the vicinity of the steam condensate blow-down sump. A test pit (TP3-1) was excavated in the vicinity of former sample SB-3-SO-7 to assess the oil-saturated soils and ground water. Samples were collected and indicated that TPH levels were up to 120,000 ppm at 6-12 ". BN levels were below residential direct contact soil cleanup criteria.

GM indicates that spotty, shallow contamination is present and that the contamination is limited to thin shallow patches of fuel oil residue present beneath the surface gravel. No additional sampling is proposed to characterize the contamination. Oily ground water or Light Non-Aqueous Phase Liquid (LNAPL) is not present as indicated by these results.

No additional sampling may be necessary for characterization, however additional sampling is required for delineation at a minimum. It should be noted that TPH levels above 10,000 ppm shall be remediated. Therefore the gravel and soils in this vicinity shall be removed followed by the collection of post-ex samples for BNs and TPH. Note: BN MDLs are unacceptable for documenting the absence of contamination.

2. Two 30,000 Gal No. 6 Oil AGSTs

These tanks were placed on supporting concrete cradles to avoid contact with soil. Staining was noted on the soil/gravel beneath the tanks and associated piping during a 1993 site inspection.

Three borings were advanced within this area (SB-3-SO-6, 9, 10). The highest TPH concentration was observed at 3.5 ft (1000 ppm). PAH concentrations above residential direct contact soil cleanup criteria were only noted to be present at SB-3-SO-10 at 6" (i.e. CaPAHs up to 1.4 ppm). Strong odors and oily ground water were observed at 1.5-3.5 ft at SB-3-SO-7.

During the 1998 RI, 4 borings were advanced (B3-18 to 3-21). Surface samples were collected at 6" below the surface or gravel layers present in some areas. In addition boring B3-21 was advanced to 2-4 ft to help characterize the oily layer observed in the gravel at 0-2 ft. A vertical delineation boring (B3-22) was advanced in the vicinity of SB-3-SO-10 to delineate the PAHs in this area. The results report the presence of PAHs at B3-18 and 19 up to 5.3 ppm.

No additional sampling is proposed to characterize the contamination. GM indicates that the contamination is limited to thin shallow patches of fuel oil residue present beneath the surface gravel.

All NJDEP conditions were satisfied during this last round, however the proposal for no additional sampling is unacceptable. No additional sampling may be necessary for characterization, however additional sampling is required for delineation at a minimum. As stated for the 500,000 tank area the gravel and soils in this area shall be removed followed by the collection of post-ex samples for BNs and TPH.

3. *Two Steam Condensate Blowdown Sumps*

These sumps are located on the floor of the containment basin. Oily black staining was observed on the ground surface surrounding these units. Previous samples SB-3-SO-6 and 7 were collected immediately adjacent to these structures. The sample depths corresponded to the interval beneath the inverts. Additional sampling was performed in these areas and is described above within the AGST section. The source of the staining is a coating of No. 6 oil residue on a thin layer of crushed gravel present just below the surface layer of coarse gravel.

GM proposes that no additional sampling is necessary to characterize the contamination.

It is possible that no additional sampling is necessary provided complete delineation has been accomplished for the PAHs and oil residue. Due to the source of contamination within this area, as stated above, it is required that the contaminated gravel and soil be removed followed by the collection of post-ex samples if it is determined that delineation is not complete or if the excavation/removal does not extend to previously established clean zones.

4. *Cooling Tower East of Power House*

Previous sample results (SB-3-SO-11 and 12) indicated the following metals were detected above residential direct contact soil cleanup criteria at SO-11: Sb = 79; Be = 11; Cu = 1100; Cr = 1100; Pb = 980; Zn = 29,000; Ni = 500 - all results in ppm. No contaminants above residential direct contact soil cleanup criteria were detected at SO-12.

As per the RIW, 4 borings (B3-14 to 17) were advanced at locations surrounding SB-3-SO-11. Samples were collected at 0-2 ft and 2-4 ft and analyzed for PPM and hex-Cr. The results report As and Cu above residential direct contact soil cleanup criteria at locations B3-15 and 3-16.

GM proposes that the impact from metals appears to be limited to surface soils adjacent to the west side of the cooling tower. Arsenic does not appear to be related to cooling tower releases. No additional investigation is proposed.

Although remediation of the metals may not be necessary, delineation is still required at a minimum. Regardless of the suspected source of the arsenic, delineation to 20 ppm shall still be completed. Likewise delineation of Cu to 600 ppm is required.

5. *Former Gasoline USTs (MOA Area D)*

a. 4,000 Gal. Gasoline UST

This tank was installed in 1971 and later removed in 1987. During removal, soil

contamination was observed, and further verified during the post-ex sampling round. Benzene, toluene, and xylenes were discovered at concentrations up to 41, 380, and 694 ppm, respectively. The extent of contamination was not determined at that time.

Historical information was again reviewed for this tank area. It was determined that the locations of the tanks as depicted in the 1994 report are incorrect. This tank was apparently located to the east of the area in which 7 borings were drilled. 1994 boring SB-3-SO-28 was drilled at the southeast corner of this former tank footprint. 1987 borings (B1 to B10) were drilled around the north, east, and south sides of this excavated area. A review of the data indicates that all of the samples analyzed were from below or beyond the limits of the tank removal excavations. MTBE was also analyzed for in the 1987 investigation with no concentrations detected in any of the samples.

Based on a review of the historical results it would appear that the contamination detected is located in the immediate vicinity of the former tank area. The samples collected beyond the excavation limits did not appear contaminated above NJDEP criteria. Samples B5 and B6 were located in the vicinity of the south end of the tank at 15 to 17 ft (immediately above the top of bedrock). This is also the approximate depth of the water table in this area.

Based on a re-interpretation of the former locations relative to the previous sample points, supplemental soil sampling was performed in 1998. Six borings (B3-1 to 3-6) were advanced within the footprint of the former tank, along the inferred tank centerline. Each boring was advanced to 18 ft. One or two samples were collected from each boring and analyzed for VOCs and Pb. The results report Pb below residential direct contact soil cleanup criteria. VOCs (BETX) were detected above residential direct contact soil cleanup criteria at 4 boring locations. The contamination was present between 9.5 and 16 ft. Benzene and xylenes are present in overburden and shallow bedrock ground water at MW-UST2, UST5, and UST6.

The contamination remains beneath this former tank area at depths of 10 to 18 ft. The extent of the contamination appears to be defined. Additional soil sampling is not proposed for this area. The extent of benzene contamination in ground water has not been defined.

The majority of contamination remaining above either residential or impact to ground water soil cleanup criteria consists of benzene and xylenes at B3-2 and 3-3. Delineation will be considered complete provided 1987 sample results (B3, 4, 5, and 6) are below current most stringent criteria and that the samples were collected at the same depth intervals. If the 1987 samples do not complete delineation then additional sampling will be required. This issue shall be clarified/presented in the next submission.

Based on the contamination already detected in ground water, GM shall remediate the remaining source of the VOCs at depth to aid in the remediation of ground water.

b. 2,000 Gal. Unleaded Gasoline UST

This tank was installed in 1979 and removed in 1989. There were no records of any releases and the tank tested "tight" as per a petro-tite test. Post-ex samples were collected for TPH, VOC, and Pb analyses at the time of removal. No contamination was detected, however the VOC holding time was exceeded, thereby rejecting the clean sample results.

As stated for the 4000 gal. tank historical information was evaluated to determine the exact location of this former tank. The samples collected as part of the 1994 RI = borings (SB-3-SO-18 to 25) were advanced with samples collected from 9 to 18 ft. All samples were analyzed for VOCs. The contamination detected at SO-25 was apparently detected adjacent to the west side of the former tank location at a depth interval immediately beneath the clean fill.

Based on a re-interpretation of the former locations relative to the previous sample points, supplemental soil sampling was performed in 1998. Two additional borings (B3-7, 3-8) were advanced west of the former tank area to delineate the xylene contamination. Each boring was advanced to 18 ft. Samples were analyzed for Pb and VOCs. The results report all VOCs and Pb below the most stringent criteria.

No additional sampling is proposed in this area.

This proposal is acceptable.

6. *Former 2500 Gal. Paint UST*

This tank was installed in 1970 to store paint collected from the paint line process tank. The tank was removed in 1989. No evidence of a release was reported at the time. Post-ex samples were collected from each sidewall of the excavation as well as four samples collected from the bottom of the excavation along the centerline of the former tank footprint. Due to data discrepancies it was stated that the results could not be used to document clean zones.

Five borings (SB-3-SO-29 to 33) were advanced as part of the 1994 RI. A total of ten samples were collected from these borings. Samples were collected at 8 and 9 ft for VOC analysis.

All sample results were below residential and ground water impact criteria for VOCs.

The 1994 sample depths have been confirmed as from below the clean backfill present in this area. No additional sampling is proposed for this area.

This proposal was accepted within the 1/27/98 NJDEP letter provided that the 1994 samples were collected from below the clean backfill. This has now been documented. No

additional sampling is necessary at this time.

7. Staining Surrounding Power House

a. Below No. 6 Fuel Oil Unloading Port – (Former No. 6 Oil Transfer Piping)
Staining was noted below this port during a 1993 site inspection. One sample was collected at 6" and analyzed for TPH and BN+15. Three CaPAHs were found to be elevated above residential direct contact soil cleanup criteria.

Four soil borings were originally proposed to be advanced to 4 ft to address the elevated BNs. During the 1998 investigation, boring B3-11 was discovered to have the possible presence of No. 6 oil at 3.5-4 ft, therefore the boring was advanced to bedrock. The remainder of the borings were also advanced to refusal. Due to the unexpected deeper contamination, several supplemental borings were installed in this area.

Samples were collected at 6" and 18 ft for TPH and BN analysis. The results report TPH levels up to 23,000 ppm in shallow soils and up to 15,000 ppm in the deeper interval. BNs were also detected at shallow intervals. The BN results within at-depth samples exhibited elevated MDLs, therefore the ND results are considered qualified and cannot be used to document clean zones.

The elevated TPH levels appear to correlate with evidence of oil or oil-staining observations. The contamination is greatest near the SW corner of the building.

No additional sampling is proposed to characterize the contamination detected. The lateral extent is limited as evidenced by clean samples at B3-23, 3-24, and 3-25. The vertical extent extends to near the top of bedrock, however appears to be limited to the overburden. Additional ground water investigation will be conducted.

It is agreed that additional sampling for characterization is not necessary for the contamination in this area. This area will require remediation and post-ex sampling for TPH and BNs.

b. Stained gravel/concrete Between Two Air Receivers on West Side of Power House
Staining was observed during a 1993 site inspection. The stained gravel was removed and two samples were collected (SB-3-SO-14 and 15) at 6" for TPH and PAH analysis. No staining was noted on the soils prior to sampling. All contaminant concentrations were below levels of concern. The staining was determined to be due to the presence of a powdery and fine grained granular black material on the ground beneath the air receivers. This material is again present in this same area. The source of the material is not known.

No clear proposal for future action was provided for this area.

No further action is necessary with regard to the soils within this area at this time. All requested information has been provided. It is required that the material resulting in the staining of the ground surface be sampled so that it may be characterized and determined whether or not to be hazardous. If the material is determined to be hazardous in nature then the discharge of this material will need to be corrected.

c. Stained Area Beneath Air Receiver on East Side of Power House

An area of staining beneath this structure was previously identified. The staining was removed. One sample (SB-3-SO-16) was collected at 6" and analyzed for TPH and PAHs. All levels of contaminants were below the residential direct contact soil cleanup criteria. The staining was determined to be due to the presence of a powdery and fine grained granular black material on the ground beneath the air receivers. This material is again present in this same area. The source of the material is not known.

No clear proposal for future action was provided for this area.

Please refer to comments above for air receiver on west side of powerhouse.

d. Stained Gravel Adjacent to Truck Parking Area

One sample (SB-3-SO-13) appears to have been collected from 6" within this area and analyzed for TPH and BN+15. No concentrations of contaminants were above residential direct contact soil cleanup criteria. All stained gravel was removed prior to sampling.

No proposals were presented for this area.

All requested information has been provided. No additional investigation is necessary for this area.

e. Below Grade Piping

Fuel oil was pumped from the fuel port to the AGSTs via underground piping. As a history of leakage and repairs exists (repair 1992), the integrity of the concrete trench had to be verified.

Visual inspection of the trench revealed a base lined with asphalt. No product appeared to have breached the integrity of the secondary containment trench. At present it is unsure whether or not the piping and trenches within this area will be removed. If these structures are not removed they will be at a minimum, cleaned and inspected.

Once cleaned and inspected, GM proposes to sample at up to 10 locations along the length of the trench if appropriate. The samples will be biased towards any staining or breaches in the integrity of these structures. All borings will be advanced to below the base of the trenches/piping. A minimum of one sample per boring will be collected and analyzed for TPH and BNs.

This proposal is acceptable, however sampling will also be necessary if the structures are removed unless they are cleaned and inspected prior to removal and their integrity documented as intact. Also as previously stated, it appears that a visual inspection of the integrity of the trench will be difficult. All sampling should be biased to include joints, dispensers, and any other potential discharge areas. All samples shall be collected immediately below the invert of the concrete trench.

f. Roll-Off Box Staging Area

Oil staining was noted in the bed of the railroad spur that runs east of the staging area (adjacent to the AGSTs). The source of oil is reportedly from roll-offs or waste handling containers staged on pavement.

Three shallow borings (B3-27, 28, and 29) were advanced within the rail bed during the 1998 RI. Soil samples were collected from 6" below the gravel bedding material present in this area as well as at depth (3.5-4.0 ft). All samples were analyzed for TPH, BNs, and PPM. The results report only Arsenic above residential direct contact soil cleanup criteria at one location (B3-28 = 30 ppm).

The oily residue appears to be from limited releases from the roll-off staging area. No additional sampling is proposed specific to the staging area.

The above proposal is conditionally acceptable. All stained gravel/bedding material shall be removed and disposed of accordingly. The elevated arsenic shall be delineated. Samples collected from other nearby areas of concern may satisfy this requirement.

g. Railroad Spur Staining

This is the same area addressed during the investigation of the staining within the rail bed adjacent to the roll-off staging area. Staining was also noted on the concrete surface west of the railroad tracks.

Two soil borings are proposed to be advanced in the area of staining/cracked concrete. Samples will be collected below the concrete and gravel subbase. All samples will be analyzed for TPH, PAHs, and PPM. Note: If the concrete is removed the area will be visually inspected to determine if sampling is necessary.

The above proposal is acceptable.

D. Area 4 = Process Waste and Hazardous Waste Staging Area

1. Hazardous Drum Storage Area (MOA Area C)

This area was not addressed within this report, the following comments have been

previously issued by the Department and are still applicable.

This concrete pad was built 1960 for the storage of hazardous and non-hazardous wastes (oils, solvents, adhesives, paints, and metal bearing sludges). Concrete walls were added for secondary containment in 1985. The pad itself drains to a catch basin, which is connected to the wastewater treatment system. The pad underwent a RCRA closure in March 1991. The historical results from the closure were provided for review. The use of the pad was discontinued in June 1997.

A total of 12 samples were collected during the RCRA closure. Six samples were collected surrounding the pad and six additional samples were collected beneath the pad. The results indicated that soils in this vicinity had been impacted and now contained concentrations of metals and BNs above the current soil cleanup criteria.

Follow-up sampling was proposed and approved within the 5/12/94 ISRA letter. As part of the MOA investigation, test borings were completed in 1996. A total of 15 borings were advanced below and around the pad. Borings advanced within the pad area targeted joints in the concrete base.

The results from this last round of sampling further confirm the presence of metal and PAH contamination. Arsenic, Be, Cd, Cu, Pb, Ni, Zn, and Cr were detected above residential, along with BaP, Benzo(b,k)fluoranthene, Benzo(a)anthracene, and Dibenzo(a,h)anthracene.

Overall there is declared to be an overall decrease in contaminant concentration with depth. Contamination extends to 12 ft. It is also believed that the ash and cinders observed within some borings may be a source for the PAHs.

Further delineation is not proposed. GM indicates that the extent of the impact was identified during the RCRA closure. If a remedial action were implemented, additional confirmation sampling could be performed to verify the effectiveness of the cleanup.

The above proposal is not acceptable. The extent of the impact has not been determined. Lateral as well as vertical delineation to the residential direct contact soil cleanup criteria has not been completed. Additional delineation samples may not be necessary, however post-remedial samples will be required if delineation is not completed prior to any remedial action. All post-ex samples shall include analysis for PAHs, As, Be, Cd, Cr, Cu, Pb, Ni, and Zn. In addition, due to the extremely high concentrations of Cr, hex-Cr analysis will be required if it has not been performed historically. All hex-Cr analyses shall follow the Department's current protocol pertaining to methods and deliverables.

2. Six Waste Roll-Offs

No further action was previously accepted for these units within the 12/17/93 NJDEP letter.

E. Area 5 = Raw Materials Storage And Maintenance Area

The storage and maintenance building was constructed in 1940. The building was used for light equipment maintenance, welding and sheet metal shops, machine press repair, pipe fitting shops, and as a shipping receiving area. No floor drains were identified. The only materials stored in the building include lube oils, cutting oils, and acetylene gas.

1. *Shipping and Receiving Area*

There has been no recorded spillage in this area and no staining was observed. A drainage trench was noted during the site visits.

All trenches are proposed to be cleaned and the integrity of each documented. No further action will be taken if the integrity is found to be intact. If the integrity has been compromised then soil samples are proposed to be collected immediately beneath the trench base biased towards locations believed to represent a release. The samples will be analyzed for TPH and PAHs.

The above proposal is acceptable.

2. *Power Substation #10*

No further action was required for this area as stated within the 12/17/93 NJDEP letter.

3. *Vehicle Wash Area*

This area lies northeast of the maintenance building. It consists of a concrete pad surrounded by a concrete lined trench. Water collected in this trench is then discharged to the process sewer system for onsite treatment. Minor staining was noted on the pad during a 1993 site inspection, however the integrity of the pad appeared to be in good condition.

During the 1998 RI one boring (B5-1) was advanced to 4.0 ft biased toward an area of concrete degradation. Two samples were collected and analyzed for TPH and PAHs. The results indicate that all potential contaminants were below their respective residential direct contact soil cleanup criteria.

No additional investigation is proposed. The staining does not appear to have resulted in any soil contamination. The trench will be cleaned and the integrity documented.

The proposal for this area is acceptable. Note: If the integrity of the trench is in question, sampling shall be necessary immediately below the base of the trench.

4. Raw Materials Drum Storage Pad

This area is paved with concrete and is used for the storage of materials such as sulfuric, hydrochloric, nitric acids, and metal working oils. No staining was noted as a result of the storage of these materials. However, during a 1993 site inspection, three out-of-service transformers were noted to be stored within this area. Stained pavement was noted beneath these units.

Three wipe samples were collected during the 1994 remedial investigation from within the stained area. Aroclor 1260 was detected ranging from .43 to .58 ug/100cm².

Storm water from the area of the pad collects in a storm drain, which discharges, to stormwater outfall 003a. Sediment sampling at this outfall for TPH, BNs, and PCBs was implemented as proposed.

If the pad is removed as originally proposed then the underlying soil conditions will be assessed. If the pad remains it will then be inspected and soil samples are proposed to be performed at two to three locations where the integrity has been compromised. One sample will be obtained from each boring immediately below the base of the concrete/gravel subbase. All samples will be analyzed for TPH and PCBs.

The above proposal is conditionally acceptable for the storage pad area. A minimum of 5 samples shall be collected from this area of concern. With regard to the discharge point sampling conducted, it is unclear as to where outfall 003a is located as it was not depicted on the site maps. It is also unclear as to which sediment/surface water samples pertained to outfall 003a. This information is necessary to determine if this area was a potential source to the drainage area and whether additional soil sampling will be required.

5. Metal Scrap Bins

This area was historically used for the storage of bulk buffing media, wooden pallets, metal die casts, and scrap metal prior to recycling. Minor staining was noted on the pavement surrounding these areas.

A proposal to collect samples within this area was previously accepted within the 12/17/93 letter. During the 1994 remedial investigation three soil samples were collected from 0-6" and analyzed for TPH, PAHs, and metals. The samples were collected in areas of staining and biased to areas where the pavement integrity was degraded. Metals and CaPAHs were detected, however all results (SB-5-SO-1 to 3) were below residential direct contact soil cleanup criteria.

No further investigation is proposed.

All requested information has been provided. No additional investigation is necessary at this time.

6. Truck Unloading Area

This area was noted, during a 1993 site inspection, as having a drainage trench filled with sediment. The integrity of this trench was questioned as well if this area had ever been used for the storage of hazardous substances.

The trenches in this area are proposed to be cleaned and inspected.

The Department previously accepted a facility wide plan to clean and inspect all trenches, sumps, and pits. This is still acceptable. As stated for the other structures, if the integrity is found to be in question then sampling will be necessary for TPH and BNs. All requirements as noted within the 12/17/93 NJDEP letter are still applicable.

F. Area 6 = South Parking Lot; Paint Storage Bldg.; and Maintenance Garage

This area includes the former vehicle parking lot which is currently used for temporary storage of empty parts handling baskets, scrap equipment, and empty roll-offs.

1. Metal Storage Bins

These empty bins are stored along the southern and western perimeter of the south parking lot. No concerns were noted during past or recent site inspections.

No further action was previously approved for this area within the 12/17/93 NJDEP letter.

2. Paint Storage Building

This building was used for the storage of small quantities of paints. No floor drains are known to exist and no evidence of any discharges have been noted.

No further action was previously approved for this area within the 12/17/93 NJDEP letter.

3. Maintenance Garage

The only concern noted was a floor drain located in the storage room. The drain is documented as connected to the storm sewer. No evidence of any discharge has been noted.

A request was made to seal the drain if any hazardous substances were ever stored in the vicinity of this drain. The drain has been sealed. No additional actions are necessary.

4. *550 Gal. Diesel AGST*

This tank is located on the south side of the garage. It was used for the fueling of small vehicles. Staining was noted beneath the fill port during a 1993 site investigation. The tank was subsequently removed and two samples were collected from within the area of staining (SB-6-SO-1 and 2). Each sample was collected at 0-6" and analyzed for TPH and PAHs. All parameters were below their respective criteria.

NFA is proposed for this area.

The conditions outlined for this area within the 12/17/93 NJDEP approval letter have been met. NFA was accepted for this area within the 1/27/98 NJDEP letter.

5. *200,000 Gal. Water AGST*

This tank was installed in the 1940's as the facility fire emergency water supply tank. No concerns were noted during any of the site inspections.

No further action was accepted within the 12/17/93 letter.

6. *Fire Fighting Practice Area*

This open area south of the garage was reportedly used as an employee training area. Pans of gasoline were ignited as part of the training.

GM proposed and NJDEP approved (12/17/93) the collection of samples biased toward the highest field screening readings. As part of the 1994 remedial investigation five locations were screened. Hnu readings were found to be below background. Two soil samples were collected (SB-6-SO-3 and 4) biased toward areas of staining and analyzed for BETX and lead. The results for the 0-6" samples were all less than residential direct contact soil cleanup criteria for each constituent of concern.

NJDEP requested the field screening results for all locations. It has been determined that the 1994 FS results are not available. To address NJDEP concerns soils in this area were resampled during the 1998 RI. Visible staining was not evident. Five samples (B6-4 to 6-8) were collected in and around the area previously investigated. Each location was screened to 2.0 ft. Samples at each location were collected from 1.5-2 ft and analyzed for BTEX. The results reported all parameters as non-detect.

No additional investigation is proposed.

Additional sampling is not necessary at this time.

7. Soil Staining South End of Parking Lot

This area was identified as a potential AOC in 1997. Staining was noted around and below the southeasternmost of four storm gutters which direct stormwater runoff from the parking lot to the drainage swale. Four shallow soil samples (B6-9 to 6-12) were collected at 0-6" just below each storm gutter. Each sample was analyzed for TPH, BN, PPm, and Hex-Cr. The results report TPH levels up to 5000 ppm. BNs were elevated above residential direct contact soil cleanup criteria at B6-11 and 6-12. Note: BN MDLs elevated for samples B6-9 and 6-10. Arsenic, Pb and Zn were also elevated above residential direct contact soil cleanup criteria in more than one sample.

No additional investigation of the extent of contamination has been proposed.

It is unclear to the Department as to how the extent of the contamination detected has been fully defined. At a minimum each of the four locations shall be delineated to the residential direct contact soil cleanup criteria for each elevated constituent. GM shall show that this has been satisfied for this area. A map depicting all delineation data should be presented for review.

8. Drainage Swale South of Parking Lot

This swale collects stormwater runoff from the parking lot and runoff of overflow water from the 200,000 gal. water tower. As proposed four sediment samples were collected (S6-1 to 6-4) and analyzed for TPH, BN, PPm, Hex-Cr, TOC, and grain size. Surface water samples were also collected at each sediment location. The surface water samples were analyzed for TPH, BN, and PPm.

The results report the detection of numerous metals. The sediment quality standards (Ontario sediment guidelines) were exceeded in each of the samples. BNs were reported as ND, however elevated MDLs were noted for samples S6-1, 6-3, and 6-4. Only Pb exceeded the surface water quality criteria at location 6-2. TPH levels were elevated up to 3700 ppm.

No additional investigation is proposed.

As stated for the storm gutter samples, additional investigation is not necessary if it can be shown that the elevated concentrations at location 6-1 and 6-4 have been adequately delineated. Otherwise additional sampling is necessary. Also as stated in the 1/27/98 NJDEP letter, potential ecological receptors shall be evaluated within and surrounding this area. Remediation of this area may be necessary based on the completion of the required baseline ecological evaluation (BEE).

9. *Stained Pavement on Parking Lot*

Oil staining and cracked pavement were observed during a site inspection. Test borings (B6-1 to 6-3) were advanced during the 1998 RI. The borings were biased toward worse case areas of staining and pavement with poor integrity. The borings were advanced to 4.0 ft. Soil samples were collected from each 2 ft interval and analyzed for TPH, BN, PPm, and Hex-Cr. The results report elevated Cu and Pb. BNs are reported as less than residential direct contact soil cleanup criteria, however the MDLs are elevated. TPH levels were recorded up to 510 ppm.

Oil staining has not resulted in significant soil contamination. The vertical extent appears limited to the soil immediately beneath the pavement. No additional investigation is proposed.

As the BN MDLs are elevated, the results may not be used to represent true concentrations present within soils. At a minimum each location shall be fully delineated to the residential direct contact soil cleanup criteria. GM shall show that this condition has been satisfied by presenting all the data on a detailed map.

G. **Area 7 = Die Storage Area; Former Raw Materials Storage Area; Former Sludge Drying Bed #5**

This area is located west of the wastewater treatment facility. It is currently used for the storage of dies and drummed raw materials. The unpaved area east of the die cast storage supposedly existed as a sludge drying bed (#5).

1. *Die Storage Area – (Stained Soil South of Die Storage Area Berm)*

This area was used for the storage of steel dies and molds from the Zinc die cast operation. Staining was noted on the pavement most likely the result of precipitation contacting lubricating materials. Surface staining of soils was also noted in the area where there was a breach in the integrity of the surrounding berm above the drainage swale. The berm was again inspected to determine if staining was still present within the area.

Two samples were collected during the 1994 remedial investigation. Shallow soils along the berm (within 6") were sampled (SB-7-SO-1 and 2) and analyzed for TPH. The results reported TPH concentrations as 110 and 1000 ppm. Note: PAH analysis was not conducted as required within the 12/17/93 letter. As proposed additional surface samples were collected during the 1998 RI. The samples were collected east, west, and south of SB-7-SO-2. The samples (B7-10, 7-11, 7-12) were analyzed for TPH, BNs, and PPm. TPH results were below 10,000 ppm. BNs were elevated above residential direct contact soil cleanup criteria up to 4.9 ppm. Note: BN MDLs are elevated at B7-12. Arsenic, Cu, Ni, Pb, Ba, and Zn were also found to be elevated.

The contamination is present along the southern edge of the die storage area. The contamination extends to B7-10 and is present in a run-off ditch at B7-9 that leads to the drainage swale. No additional investigation of the extent of contamination is proposed.

As stated above, additional investigation is not necessary if it can be shown that the elevated concentrations at these locations are adequately delineated. Otherwise additional sampling is necessary. Also as stated in the 1/27/98 NJDEP letter, potential ecological receptors shall be evaluated within and surrounding this area. Based on a review of figure 2, the area does not appear to be delineated. Remediation of this area may be necessary, pending review of the required BEE and the proposed use of the site. Additional actions shall be proposed within the next report as necessary.

2. Former Raw Materials Drum Storage Area

This area was used for the storage of drummed raw materials including cutting oils, lubricating oils, chem-clean concentrate, and caustic potash. The area is paved with concrete, however no records are available to determine if materials/drums were ever stored in this area prior to it being paved. No staining or evidence of leakage was noted during the 1993 site inspection. No sampling was performed during the 1994 or 1998 RI phases.

No proposal was provided for this area.

No records are available that documents the paving history of this area. As proposed previously, the area shall be inspected to verify the integrity of the area. Sampling requirements shall be based on the paving history documentation and the results of this inspection by GM and NJDEP representatives.

3. 550 Gal. Gasoline AGST

This tank was installed in 1989 for the fueling of maintenance vehicles. The tank is steel construction located within a metal secondary containment structure. No evidence of leakage was noted during the 1993 site inspection.

No further action was granted for this AOC within the 12/17/93 NJDEP letter.

4. Former Sludge Drying Bed #5

This asphalt lined impoundment was operated in the 1950's for dewatering sludges generated during the wastewater treatment process. The use of this impoundment was discontinued due to mechanical/operational problems associated with the system pumps. No records of decommissioning exist.

Five borings were advanced within this former area as part of the 1994 RI. Fill material was encountered to 8 ft (ash/cinders). Layers of sludge mixed with soil fill were also evident. Five samples from each boring were collected and analyzed for TPH, VOCs, BNs, PPM, CN, and TOC.

The results confirmed the presence of sludge material containing elevated concentrations of BNs, Cr, Cu, Ni, Zn, and CN. TPH and TCE were also detected, however at much lower levels.

Six additional borings (B7-2 to 7-6) were advanced outside the limits of the former sludge bed during the 1998 RI. One boring was also advanced through the center of the bed area (B7-1). All borings were advanced to refusal. Three to 4 samples per boring were analyzed for TPH, BN, VOCs, PPM, and hex-Cr. The results report the presence of As, Cu, Ni, BNs, and VOCs. TPH levels were detected up to 6000 ppm.

The submitted reports indicate that contamination appears limited to the footprint of the former sludge bed and to shallow soils west of the former bed. Delineation is proposed to the west beyond B7-3. The north and east appear to be minimally impacted. The southern extent is limited by the drainage swale since the swale elevation is lower than the base of the sludge bed fill material.

A minimum of 3 borings are proposed to be advanced around B7-3. The borings will be advanced to refusal. Samples (min. of 2) will be biased toward FS readings, staining, or the previous depth of contamination. The samples will be analyzed for TPH, BN, VOCs, and PPM.

The proposal to perform additional delineation in and around this former sludge bed is conditionally acceptable. Due to the nature of the contamination, targeting the collection of samples based on field screen readings is only appropriate for volatile analysis. It is more appropriate to bias the samples based on the previous depths of contamination.

As stated above for the drainage swales within areas 6 and 7, whether or not any ecological receptors are present in this area shall be further evaluated. A baseline ecological evaluation is required. Please refer to comments below.

5. Former Raw Materials Drum Storage Area - Oil-Stained Concrete

Cracked and oil stained pavement was noted at the northwest corner of the storage shed during a NJDEP site inspection. One boring was advanced (B7-7) at the location of the stained/cracked concrete within the metal storage shed. Samples were analyzed for TPH, BNs, VOCs, and PPM. One boring (B7-8) was advanced at the location of the stained/cracked concrete in the Millwright's area. Samples were analyzed for TPH, BNs, and PPM.

The results indicate that only PAHs were present above residential direct contact soil cleanup criteria at location B7-8. It should be noted that the BN MDLs were elevated for the 0-2 ft interval within boring B7-7.

The results indicate that only minor impacts have occurred. No additional investigation is proposed.

The sampling was performed as proposed and accepted by NJDEP. As PAH levels are above the residential direct contact soil cleanup criteria and the BN MDLs are elevated, additional delineation is necessary. The results for B7-7 may not be used to represent true concentrations present within soils. At a minimum each location shall be fully delineated to the residential direct contact soil cleanup criteria. GM shall show that this condition has been satisfied by presenting all the data on a detailed map.

6. Drainage Swale South of Die Storage Area

Samples were collected as required from the sediment south of area 7. Two samples were obtained (S7-1 and S7-2) for TPH, VOC, BN, PPm, and particle grain size. Note: Total organic Carbon (TOC) was mistakenly omitted by the laboratory during analysis. Surface water samples were also collected (SW7-1 and SW7-2) at this time for TPH, VOC, BN, and PPm analyses.

The results were compared to the sediment quality criteria and surface water criteria. TPH levels are reported as 130 and 6400 ppm. The BN MDLs are noted as elevated for sample 7-1. TCE was detected at .006 ppm within sample 7-2. Arsenic, Cu, Pb, Ni, Zn, and Cr were detected above the freshwater sediment screening guidelines in both sediment samples. All compounds within the surface water samples are noted to be below the surface water criteria.

Additional investigation of the extent of metals in the sediment is not proposed. Sediment samples are proposed to be recollected and analyzed for TOC.

The proposal to perform no additional investigation is unacceptable. The extent of the metals contamination shall be determined as part of an ecological investigation/evaluation. Additionally the BN results cannot be accepted due to the elevated MDLs. It should be noted that no results tables for area 7 sediments were provided within vol. III of the report. These tables shall be submitted to allow for further review of this area. As it will be necessary to conduct additional sediment sampling – it is unnecessary to recollect samples solely for TOC analysis. In reference to the surface water results, it appears that the MDLs are elevated above the surface water quality criteria. The ND results therefore cannot be accepted for documentation of clean zones. Whether or not particle grain size was analyzed is unclear and should be clarified.

Please also refer to the section of this letter pertaining to the completion of an ecological investigation.

7. Area of Concrete Staining in Motor Storage Area

This area was identified during a NJDEP site inspection. NJDEP rejected a proposal for no sampling within this area.

If concrete pavement is removed within this area the underlying soils will be visually evaluated. If the pavement remains, one soil boring is proposed to be advanced in the area of the staining near the drain. A sample is proposed to be collected immediately beneath the concrete and will be analyzed for TPH, BNs, PCBs, and PPM as required in the 1/27/98 NJDEP letter.

The proposal to investigate this area is conditionally acceptable. If the cracking in the pavement extends through the entire concrete layer, sampling will be necessary regardless of whether or not staining is still visible at the present time. Staining may not necessarily be evident if a spill was not recent.

H. Area 8 = Waste Water Treatment Plant

This plant was constructed in 1937 for the treatment of process wastewater. Process wastes include plating fluids, waste oils, and contact cooling water. The treated wastes are then discharged to the POTW.

1. New Oil-Water Separator

This unit was installed in 1990 to replace the sludge settling tanks. The base of this unit is set two ft into bedrock (16.5 ft). All material is transferred by above ground piping. Initial soil sampling in this vicinity indicated the presence of PAHs (BH-2). This PAH contaminated soil was excavated. The source of the PAHs was determined to be a railroad tie. The system itself did not impact the area soils.

All soils in the vicinity of BH-1 to BH-9 were excavated and stockpiled onsite prior to construction of the new oil-water separator in 1990. Pieces of the railroad tie were removed from the stockpile and disposed of offsite. The remaining stockpile of soils was used as backfill.

As requested it has been clarified that all soil at the locations in question were excavated. However as the soil was used to backfill the excavation the need to determine if all possible contaminants have been identified still exists. It is uncertain whether or not VOC or PCBs are present due to the elevated MDLs utilized during analysis of samples BH-2 and BH-4.

A proposal to address this concern shall be presented for NJDEP review.

2. Sanitation Washdown Area

This area is used for vehicle/equipment washing. The concrete area is surrounded by a berm. A sump is present within the bermed area and discharges wash water directly to the oil/water separator for pre-treatment.

Staining was observed near the southwest corner of the containment area during a 1993 site inspection. The integrity of the sump was also questioned at that time.

It was proposed that the integrity of the sump would be further investigated. Appropriate sampling would be conducted if releases were identified.

The concrete structure and associated sump were removed prior to the 1998 RI field work. Soil boring B8-9 was drilled and sampled adjacent to the former location of the wash down deck sump. This sample was originally designed to investigate past releases of process wastewater and spent nitric acid. The sample also addresses the conditions of this sump.

The results from boring B8-9 which was advanced to bedrock report no contaminants of concern above the residential direct contact soil cleanup criteria.

No additional investigation is proposed.

The proposal is generally acceptable, however before no further action can be granted the boring location in relation to the sump shall be depicted on a scaled site map. Additionally the distance of the boring from the original sump location shall be documented as well as the invert depth of the sump.

3. Former 500,000 Gal. Sludge Settling Tanks

These above ground structures are constructed of reinforced concrete, extending to a depth of 11 ft below grade. The tanks received effluent from the neutralization tanks. The integrity of the tanks has been questioned.

In May 1993 a release from an underground pipe at a location adjacent and west of one of the tanks was discovered. Post-ex sampling revealed the presence of Cu, Cr, Pb, Ni, and Zn. Note: Only a few metals were targeted during this sampling round.

Additional samples were collected during the 1994 RI. Four additional borings (SB-8-SO-11, 12, 13, 14) were advanced with samples collected between 8 and 18 ft. The results from this 1994 sampling round, confirmed the presence of elevated concentrations of metals, specifically Cr, Cu, Pb, Ni, and Zn. In addition to the metals, BETX and other volatile

compounds were discovered. At all four boring locations, a vertical clean zone was established at 16 or 18 ft.

As proposed and accepted an additional 8 borings (B8-1 to 8-8) were installed in the area. Multiple samples were collected for PPM, BN, VOC, CN, pH, Hex-Cr, and PCBs. Ground water samples were also collected from MW-7, 7A, 9A, 11, and 12. The results report the presence of Ba, Ni, Pb, Zn, Cu, Cr, CaPAHs, CN, and PCBs above applicable criteria. In addition the VOC MDLs were elevated for samples 8-4, 8-6, and 8-8, therefore the ND results are unacceptable.

Fill material was observed in each of the borings between the depths of 6.5 and 18.5 ft. The soils within the fill material are primarily impacted by metals. There are also localized impacts of VOCs, BNs, and PCBs. GM indicates that significant impacts to the native soils beneath the fill are not apparent. Additional investigation is not proposed.

The proposal for no additional investigation is unacceptable. Although it is uncertain as to what remedial steps may be feasible due to the depths and widespread nature of contamination, the extent of the contaminants detected shall still be fully documented. Delineation to the most stringent criteria shall be completed for this area. Most importantly the extent of contamination to the south of this area as well as offsite in this direction is currently a concern that shall be investigated. It appears that a sample was collected at 21-22 ft at B8-4. This sample may be used for the purpose of establishing a vertical delineation point for the contaminants in question, with the exception of CN. CN is noted to exceed the impact to ground water criteria at numerous locations. A proposal to address CN shall also be submitted for NJDEP review.

4. Former Process Sewer Structures = Sump, Parshall Flume, and Retention Box

These units were observed during a 1993 site inspection. The integrity of all structures was questioned, as standing oil was observed within the retention box structure.

These structures are to be removed during facility decommissioning. Decontamination, visual inspection, and documentation of the integrity of each structure will be performed prior to demolition. Sampling will be performed if breaches in the integrity are identified. One to two borings would be advanced within 2 ft of the downstream side of the structure in question. One sample immediately beneath the invert of the structure will be collected for TPH, BN, PPM, VOC, CN, and pH analyses.

The above proposal is conditionally acceptable. PCBs shall be analyzed for in 25% of samples analyzed for TPH. TPH samples selected for PCB analysis shall exhibit the highest concentrations.

5. *Waste Oil Tank*

A RCRA closure was initiated for this tank in March 1991. Post-ex samples were to be collected after decommissioning of the tank, however sampling was not conducted due to the close proximity of the sludge settling tanks.

Sampling as required within the 12/17/93 NJDEP letter was performed during the 1996/97 MOA investigation. The results were reported in attachment 2 of the July 1997 RIW.

No proposal was provided for this area.

It shall be confirmed that this tank is the same tank that is referred to as the 30,000 gal waste oil tank identified in MOA area B. If this area of concern is the same as MOA area B then the comments noted below for the MOA area B may be referenced.

6. *11,000 Gal. Waste Oil AGST*

This tank was installed in 1991 and is constructed of steel with an insulated coating. It is surrounded by secondary containment with above ground piping. A sump exists within the containment area which collects liquids and discharges it to the process line for treatment.

During a 1993 site inspection, water and oil were noted in the sump within this area. The integrity of the sump was questioned. The sump was subsequently cleaned and inspected. No cracks were observed that would likely have caused a release to the underlying soils.

GM proposes that the sump will either be recleaned and/or demolished. If warranted, soil sampling will be performed beneath the sump in areas where the integrity is in question. Samples will be analyzed for TPH, PPM, VOCs, BNs, and PCBs.

The above proposal is acceptable. Sampling if determined to be necessary should be performed within the first 6" of soil beneath the actual structure.

7. *Eight Neutralization Tanks*

These 8 tanks are constructed of reinforced concrete. They had been fully operational. No evidence of a discharge due to poor integrity has been known to exist. An overflow did occur on 3/28/94 and again in 1997 due to excessive rains.

As proposed these tanks were addressed by the sampling scheme described above for the 500,000 gal. sludge settling tanks. As noted contamination is present in soils throughout this area.

Sample B8-1 to the north of these tanks was the only sample that is considered free from contamination. Please refer to the comments above for further sampling details and results.

GM proposes to either clean and inspect the tanks for integrity or they will demolish and remove the tanks. If the tanks are scheduled for demolition then the walls and bottoms will be inspected. Underlying soils in the vicinity of areas with questionable integrity will be sampled and analyzed for PPM, VOCs, BNs, CN, PCBs, and pH. If warranted any contaminated soils will be excavated and disposed offsite. Should the tanks remain in place and are found to have sound integrity then no further action will be proposed. If the tanks remain and the integrity is determined to be questionable then soil borings will be advanced at the breached locations in the concrete. A minimum of one sample per boring biased toward the area immediately below the base of the tank will be collected. Deeper samples will be collected if field conditions dictate.

The proposal to determine the integrity and investigate the possibility of releases beneath the tanks is acceptable. The comment noted above for the 500,000 gal. sludge tanks should also be taken into consideration as delineation has been determined to be incomplete within the borings advanced during the 1998 investigation.

8. *Waste Treatment Building*

No further action was required for this area as per the 12/17/93 NJDEP letter. No new concerns were noted during the more recent site inspection.

9. *Former Trash Incinerator*

This unit was located to the west of the primary settling and oil removal tanks. It was used for the disposal of paper products and wooden pallets. The unit was taken out of service in 1960. No sampling was conducted at that time.

A second incinerator location was identified in the area under the concrete pad to the northwest of the former sludge settling tanks. This unit was used for the disposal of waste oil.

Two borings were advanced in the vicinity of the first unit's former location. PAHs and metals were detected (Benzo (b)fluoranthene at 1.1 ppm and arsenic at 78 ppm). Fill material was noted to be encountered at 6 and 12 ft within this area.

Rationale for the location of the two borings has now been provided as requested. The locations were based on aerial photographs that depict the location of the first incinerator. The samples were collected within the footprint of the former incinerator area. Also it is not known what fuel other than plant trash may have been used to fire the incinerator.

Aerial photographs depict the second incinerator location as adjacent to the center of the NE wall of the old oil-water separator tank. The MOA RI sample B-S18 was collected from the sidewall of the excavation in conjunction with the removal of the structure. The sample was collected beneath the former footprint of the second incinerator.

The area of the trash incinerator is currently paved. The pavement may be removed in which case all underlying soils will be visually inspected. Sampling for PAH and PPM analysis will be conducted if determined to be warranted.

As indicated within the 1/27/98 NJDEP letter, the concern with whether or not the area has been adequately investigated still exists. Due to the nature of the contamination and the AOC, it is necessary to sample soils above 4 and 6 ft to determine whether the results currently available represent worst case. Surface soils that most likely represented the surface of this AOC when the incinerator was in operation should be targeted. The presence or lack of visual staining may not accurately represent soil conditions.

With regard to the second waste oil incinerator, the former location/footprint has not been adequately plotted on a scaled site map. This unit shall be depicted in relation to sample B-S18 and any other samples that may represent soil conditions in this vicinity. Sample B-S18 was analyzed for PPM, VOCs, CN, PCBs, and BNs. No contaminants of concern were detected. This result indicates that the soil surrounding the old oil-water separator has been adequately remediated. This sample does not however adequately represent soil conditions in association with the operation of an incinerator. As stated for the trash incinerator, surface samples, a minimum of two shall be collected within the vicinity of the former footprint of this structure. The samples shall be analyzed for waste oil parameters (i.e. TPH, VOCs, BNs, PCBs, and PPM).

10. Soil Piles

This soil originated as a result of the construction of the new oil/water separator. The soils were sampled in-situ prior to removal (BH-1 to 9). Concentrations of PAHs were discovered at location BH-2, but further sampling (BH-2a,b,c) verified the source as a creosote railroad timber. This area was addressed in conjunction with MOA Area B.

No additional comments are necessary at this time. Refer to the comments pertaining to the old oil-water separator.

11. Spent Nitric Acid Spill / Past Leak in Process Wastewater Sewer

A spill of approximately 300 gal. of spent nitric acid occurred along the washdown deck in 1989. The acid flowed down a drain that connects with the wastewater treatment plant. All impacted soils were excavated at the time of the spill, however no post-ex samples were

collected. A short term leak also occurred in 1991 in the process sewer in this same area. samples SB-8-SO-17 and 18 were collected at 4.5 ft to document conditions within the area of the nitric acid spill. No contaminants of concern were noted. MOA sample B-S16 addressed the area of the sewer leak. Ni and PCBs were detected at this location.

Further investigation into the remediation of the 1989 spill revealed that only 6" of contaminated soil was removed and replaced with clean backfill. The source of the backfill material could not be confirmed. A boring (B8-9) was advanced in the area of the spill to the top of bedrock. Samples were collected from 5.5-6 ft, 10.5-11 ft, and 16.5-16.9 ft and analyzed for pH, CN, VOCs, BNs, hex-Cr and PPM. An additional sample was collected at 1-1.5 ft for pH analysis. No significant impact was observed, no contaminant levels of concern are noted.

No additional investigation is proposed.

With regard to the nitric acid spill all NJDEP concerns have been addressed with the exception of the backfill material. It was stated within the 1/27/98 letter that if the origin of the backfill material could not be determined then samples from this material would be required. No samples were collected during this last round from the top 1.0 ft of soil. GM should address this discrepancy and submit a proposal for characterizing these soils.

The location of boring B8-9 in relation to the process sewer leak was not depicted on a scaled site map. In addition the depth of the leak in relation to the boring sample depths has also not been clearly defined. Additional information specific to the process sewer leak shall be submitted for NJDEP review.

12. Sulfuric Acid Leak

A release of approximately 100 gal. of raw product occurred in 1990 from an above ground pipe elbow. The spill was contained within the immediate area and some soil (approx. 73 ft³) was excavated. Post-ex samples were collected for Cu, Ni, CN, SO₄, and pH. Cu and Ni levels were found to be elevated at 3600 and 3000 ppm respectively. pH levels were discovered to be low at .09. As such soda ash was incorporated into the backfill to neutralize the low pH.

This area was being addressed in conjunction with the neutralization tank area. Additional borings were advanced surrounding these areas during this last phase of sampling. Ni and Cu have still been found to be elevated throughout this area. In addition the last round of sampling documents the presence of elevated concentrations of Ba, Pb, Zn, Cr, BNs, VOCs, and CN.

No specific proposal for this area was presented. Only the neutralization tanks are proposed to be further investigated.

It is acceptable to the Department if this area is investigated in conjunction with the neutralization tanks. As stated above, the area is not delineated and additional investigation is warranted at a minimum. In addition the origin of the backfill material shall be documented. If this information does not exist then sampling as described for the nitric acid spill should be conducted.

13. Drainage Swale Downstream of Outfall DSN003a

A release of mineral oil from a punctured tote has been documented. The majority of material released was collected. Approximately 1 gal. was released to the storm sewer. As proposed a sediment (S8-1) and surface water (SW8-1) sample were collected from the drainage swale. The samples were analyzed for TPH, BNs, PCBs, hex-Cr, TOC, and particle grain size as required. No compounds of concern were detected in either the sediments or the surface water.

No additional investigation is proposed.

As previously stated this area shall be included in the required baseline ecological evaluation regardless of the apparent absence of contamination. No additional samples will be required at this time. It should be clarified whether particle grain size analysis was completed as originally required.

14. Transformer Substation No. 14

A spill was documented to have occurred on Aug. 20, 1992. Wipe samples were collected from the stained concrete pad during the 1994 RI. Sample results (SB-8-WP-19 and 20) report the presence of aroclor 1260 at 5200 and 15,000 ug/100cm² respectively. Four additional samples (B8-10 to 8-13) were collected during this last investigation. The samples were collected at 0-6" from each side of the concrete pad. The results report that aroclor 1260 was detected at location B8-10 = 3.1 ppm. The result indicates that a minor impact to surrounding soils has occurred. Additional investigation is warranted.

Three shallow soil samples (0-6") are proposed to be collected in the area surrounding location B8-10. In addition a deeper sample (2-4 ft) will also be collected. The samples will be analyzed for PCBs. The transformer and the contaminated concrete pad will be removed during the facility decommissioning activities. The soils beneath the pad will be visually inspected. Sampling will be performed if determined necessary.

The proposal for additional sampling is acceptable. With regard to the contaminated pad, the presence or absence of staining is not always a sufficient indicator of contamination with PCBs. If the pad is determined to contain cracks that would permit a discharge to the underlying soils, then sampling is necessary regardless of the presence of staining.

15. Last Leak in Process Waste Water Sewer

A minor leak occurred during the decommissioning of the old oil water separator in 1991. The area was addressed during the MOA investigation of the oil water separator area. MOA sample B-S16 was a sidewall sample and reported the presence of Ni = 367 ppm and PCBs = .67 ppm. No VOCs were reported at levels warranting further concern. One boring was advanced to bedrock (B8-9). The results are described above in relation to the nitric acid spill.

No further investigation is proposed.

As stated above within the nitric acid spill comment section of this letter, it is unclear as to whether or not this boring was advanced in the immediate vicinity of the former leak. This shall be confirmed as well as the depth of the leak in relation to the most recent sample depths. All information shall be provided on a scaled map of the AOC.

16. Former Oil/Water Separator and Waste Oil UST (MOA Area B)

The old separator consisted of two 160,000 gal. sludge settling tanks and an oil skimming unit. Oil collected was discharged to a 30,000 Gal. waste oil UST. Both units were constructed of concrete in 1937 to process wastewater generated in facility plating and painting operations. The sludge settling tanks which extended approximately 10 ft below grade and the waste oil tank were taken out of service when the new separator and waste oil AGST were installed in 1990/91.

Contaminated soils were removed during the MOA investigation. Confirmatory sampling was performed between Nov. 1996 and Jan. 1997. Samples MOA-B-BS1 to BS5 addressed the waste oil UST area and samples MOA-B-S1 to S20 targeted the oil water separator area.

The results reported the remaining presence of low level metals (As, Be, Cd, Cr, and Ni), xylenes, and PCBs (aroclor 1260) above residential direct contact soil cleanup criteria and/or impact to ground water criteria.

Due to the levels of contaminants in the vicinity of S2 and S19 additional soils were excavated. Three additional post-ex samples (S21, 22, 23) were collected. The results for these three samples are all below the current residential direct contact soil cleanup criteria. Note: The comments have been modified based on the change in cleanup criteria for Cd and Be.

NJDEP required additional delineation in the vicinity of S16, S14, S13, and BS2. The contamination detected at B-S16 (Ni and PCBs) can be laterally delineated by 1998 test boring B8-9. Samples S13 and 14 were collected along the SW wall of the former

separator. They are a few feet from the new oil-water separator.

Additional samples are proposed to address the concerns with delineation in this area. If the new separator is demolished/removed three soil samples are proposed to be collected from the east sidewall near previous locations MOA-B-S13 and S14. The samples will be analyzed for PCBs. If demolition is not performed one or more borings will be advanced to complete delineation of PCBs. One boring will be advanced 5 ft north of B-BS2 to bedrock. Samples will be collected at 6 ft and 12 ft. Additional intervals will be included if necessary to complete delineation of As and Cd. One boring will also be collected 20 ft north of MOA-B-S16 to bedrock. One soil sample will be collected at 6 ft to be analyzed for Ni and PCBs. Additional intervals will be included if determined necessary.

The soils were previously considered characterized. The proposal to perform additional delineation is conditionally acceptable. It is acceptable to address the PCBs at locations S13 and S14 either during the demolition of the separator or by advancing borings. It is acceptable to address the As contamination at BS2, however As is also elevated at locations BS3, BS4, and BS5 and should be included in the plans for As delineation. Note: Cd is no longer considered a concern due to the change in the cleanup criteria for this metal. It is acceptable to address the PCBs and Ni at B-S16.

Lastly, the elevated Be concentrations at S1 (10 ft) and S12 (5.5-6 ft) shall be delineated.

I. Area 9 = Power house Parking Lot and Equipment Storage Area

The parking lot was constructed in the 1950's of asphalt with a concrete base. Originally, this area was used as an overflow employee parking area. More recently it was being utilized for the temporary storage of equipment and materials removed from the manufacturing building. The lot is currently empty, except for small piles of concrete, soil, and gravel resulting from a recent water main repair. Small piles of cinders and asphalt as well as zinc metal chips have been noted at the edge of the parking lot pavement. These areas are further discussed below.

1. *Power House Parking Lot*

During the 1993 site inspection several areas of notable staining were observed. The stains were either on the concrete or the adjacent gravel and/or soils. The integrity of the entire parking lot was found to be questionable. In addition, small piles of asphalt and slag as well as zinc metal chips were observed.

As originally proposed, soil borings (12) were advanced within Area 9. Samples were collected from 6" intervals and analyzed for PAHs, TPH, and PPm. The 1994 RI results (SB-9-SO-1 to 12) for the 8 shallow borings collected along the eastern edge of the lot and the 4 samples collected in areas of staining and/or cracked pavement revealed the presence

of CaPAHs (up to 46 ppm) and metals (As, Cr, Cu, Ni, and Zn) above current residential direct contact soil cleanup criteria. Note: The PAHs were elevated in areas visually observed to have staining present.

a. Eastern Edge of Former Equipment Storage Area

As proposed 19 shallow soil samples (B9-1 to 9-19) were collected to investigate the elevated PAHs and metals. Previous locations SB-9-SO-7 and SO-1 were specifically targeted for delineation. Samples were collected at 0-6". In addition a few samples were collected at 1-2.0 ft for vertical delineation.

In addition to the proposed samples, a composite sample (GRB9-1) of the slag and cinders was collected in response to NJDEP concerns. This sample was analyzed for PAHs and PPM.

Lastly, sampling was performed at the edge of the parking lot to investigate conditions related to the adjacent areas 8 and 10.

i. 1998 Shallow Soil Samples – The results from these 19 boring locations confirm the presence of PAHs and metals. Arsenic, Be, Ni, Cr, Ba, Cu, and Zn were all detected above residential direct contact soil cleanup criteria. Arsenic was found to be elevated at almost every location sampled. Levels were detected as high as 590 ppm.

ii. Composite Sample – This sample, collected near boring B9-9 did not report any metals or PAH concentrations above residential direct contact soil cleanup criteria.

iii. Investigation of Adjacent Areas 8 and 10 – One boring B8-3 was advanced within area 10, but adjacent to areas 8 and 9. The boring results indicate that the 4.5-5 ft interval is contaminated with Cu, Ni, Zn, and CaPAHs. Sample depths 0-6", 1.5-2 ft, 11.5-12 ft, and 15-15.5 ft within this same boring did not report any contaminants above the residential direct contact soil cleanup criteria. Borings B10-1, 10-2, 10-4, and 10-6 were advanced within Area 9. The results indicate that only elevated concentrations of metals were found to be present at B10-2, which was collected between the two contaminated borings of B9-12 and 9-13.

In addition to the advancement of borings, two test pits were excavated adjacent to the border between areas 9 and 10. These test pits (TP10-1 and 10-2) were sampled for PPM and PAHs. Sampling at TP10-1 (6-12" and 9-9.5 ft) indicated that As was elevated (30 ppm) at the 6-12" interval. At TP10-2, the PAH MDLs were elevated up to 3.9 ppm. Therefore the ND results are considered unacceptable.

The reports indicate the detection of Ba, Cr, Cu, Ni, and Zn along the parking lot west of

the sludge beds appears related to the sludge beds rather than runoff from Area 9. The slag piles do not appear to pose a significant environmental risk, as is evidenced by composite sample results. GM also states that Arsenic concentrations, except at location B9-2, do not appear to be related to specific releases of contaminants and that the levels appear to be representative of general conditions of surface soils along the edge of the parking lot.

Additional sampling is proposed along the northern edge of the parking lot. Specifically location B9-2 will be lateral and vertically delineated. Three shallow (6") soil samples will be collected as well as a deeper sample (2-4 ft) immediately adjacent to location B9-2. All samples will be analyzed for PAHs and PPmetals.

The proposal to collect additional samples for delineation is acceptable. However regardless of whether or not the contamination is related to a specific release, the concentrations above the most stringent criteria shall be delineated. The metals detected throughout this area are related to onsite operations. The sampling proposed only addresses the delineation of location B9-2. The larger concern, i.e. delineation of the entire Area 9 is not addressed by this proposal. GM shall begin to evaluate future remedial proposals and the need for further delineation in this area as well as those areas previously addressed.

b. Areas of Past Fill Placement and Areas of Settlement

A shallow depression approximately 100 ft long was noted in the asphalt pavement. Fill material from various onsite sources may have been placed in this area of the site. Samples previously collected from either cracked or stained pavement revealed the presence of Ni and Zn.

As proposed a test-pit investigation was conducted. Test-pit TP9-1 was excavated in the southern portion of the parking lot. TP9-2 was excavated in the area of the shallow depression. TP-3 was excavated in the vicinity of former boring SB-9-SO-9. Samples were collected from each test-pit. Field screening was performed for VOCs. BN and PPM analyses were performed. If staining or elevated field readings were observed then VOC and PCB analyses were also included.

Fill material was encountered at depths of 5 to 7 ft. Debris (construction) and other byproducts (rubber, plastic, metal chips, wire, glass, paint and pigments) were also encountered. Photodocumentation was provided within Appendix G. Two samples were collected from each pit – one from the fill material and one from the underlying native material.

Within TP9-1 fill material was found to be present to 6.0 ft. The native soil encountered consisted of sand and silt. The fill material results (ppm) report Ba = 1800, Cu = 2700, Ni = 550, Zn = 3400. VOC, BN, and PCB levels were all below the most stringent criteria. The native soil was analyzed for BNs and PPM. No levels above residential direct contact soil

cleanup criteria were detected.

Within TP9-2 fill material was present to 4.5 ft. Soil fill with gravel was found to 6.5 ft. Native sand and silt was found below 6.5 ft. During the excavation of this test-pit an empty drum was encountered at 3-4.0 ft. The test-pit was expanded to the north and south to determine if additional drums were present. No other drums were encountered. The fill sample was collected immediately beneath the drum. The following concentrations were detected (ppm): Ba = 2200, Cu = 1100, Pb = 880, Ni = 1100, Zn = 10,000, PCBs = 16. The sample from the native soils (10 ft) did not report any exceedances for BNs or metals.

Within TP9-3 fill was only observed to be present to 1.0 ft. Sandy gravel and cobble matrix fill was found to 5.0 ft. Native material was found below this depth. The fill sample was collected at 6-12" within what appeared to be sludge/buffing wheel compound material. The results report (ppm): Ba = 1000, Zn = 3200, xylenes = 23.3, PCBs = 13. The sample of native material was obtained at 9.0 ft. No PPM or BN concentrations were detected above residential direct contact soil cleanup criteria.

GM indicates that the contaminants appear limited vertically to the fill material. The area is further discussed in conjunction with the fill material/by-product areas of the site. Fill material has been identified in Areas 8, 9, and 10 of the site. Only a small portion of Area 9 has currently been investigated. An electromagnetic (EM) geophysical survey is proposed to be conducted in the parking lot of area 9 to determine whether or not additional drums are present. Up to 10 soil borings are proposed to follow up the geophysical anomalies. At least one sample is proposed to be collected from the fill zone in each boring. The sample will be analyzed for TPH, BNs, PPM, and VOCs, and PCBs where visual or field screening indicates analysis is warranted. In addition three overburden and one bedrock monitoring well are proposed.

The above proposal is acceptable. All samples shall be analyzed for PCBs. Staining is not always indicative of the presence of PCBs. Field screening may be used to determine if VOC analysis is necessary. As stated previously, complete delineation of all contaminants of concern within this area should be considered during this next phase. This will be required at a minimum prior to evaluating future remedial proposals. It is especially important to determine the extent of the elevated PCBs, as this contaminant should not be widespread throughout this area. Vertical delineation of the test-pit areas is not complete for PCBs as they were not analyzed for within the native soil samples.

J. Area 10 = Former Sludge Drying Beds #1-4

These four unlined impoundments were used from 1950 to 1972. The approximate depth is 4 feet and the sludge deposited in this area is suspected to have contained CN, solvents, Cu, Ni, Cr, and Zn. In 1972 the beds were filled with suspected non-hazardous construction and demolition debris. The sludge present at that time was not removed.

In March 1984 a limited investigation was conducted under the NJPDES program. Eight soil and 4 water samples were collected from test-pits excavated from within the impoundments. Ni, Cr, CN, As, and solvents were detected in the sludge and water samples. The results were reported April 1986.

An additional investigation was conducted Sept. 1984 by NUS. Samples were collected in and around the beds. Two sediment and two water samples were also collected at this time from Gold Run stream. All samples were analyzed for PP+40 and CN. A formal GW investigation was begun as a result of the results from this investigation. The results from this NUS investigation have still not been provided in a usable format. It is stated that these results could not be located by GM. GM has requested that the data be obtained from NJDEP and then will be presented in a subsequent submission. GM should pursue performing a NJDEP file review.

As part of the 1994 remedial investigation, 12 soil borings (SB-10-SO-1 to 12) were advanced in Area 10. A total of 49 samples were collected and analyzed for VOCs, BNs, TPH, PPM, CN, TOC, and pH. Sludge-like material was encountered in SO-5, 7, and 10 - ranging from 2 to 11 ft in thickness. BTEX, PAHs, TPH, and metals are present in soils both within and outside the drying beds. Contamination was present between 4 to 12 ft.

As proposed eight soil borings (B10-1 to 10-8) were advanced outside the limits of the sludge beds. Two samples were obtained from each boring to help define the limits of the former beds. Each sample was analyzed for BNs, VOCs, PPM, and Hex-Cr. The results indicate that only sample B10-5 (0-6") contained BNs above the residential direct contact soil cleanup criteria. Ba, Cu, Ni, As, and Zn were detected above residential direct contact soil cleanup criteria at location B10-3. Cu, Ni, and Zn were elevated at location B10-2.

GM proposes that the contamination does not appear to have significantly migrated beyond the limits of the sludge beds. No additional investigation of the extent of the soil contamination is proposed.

The borings were advanced as proposed. Hex-Cr analysis was included as required in the 1/27/98 NJDEP letter. PCBs were not analyzed as requested in the 1/27/98 letter. Due to the detection of PCBs during this last phase of sampling in area 9 and the lack of PCB data specific to the sludge beds additional investigation for PCBs is required. With regard to additional sampling for the other parameters, delineation is not complete for the following locations. Location B10-8 (0-6") - BN MDLs are elevated (3.9 ppm), the ND results are unacceptable. Delineation is not complete for BNs to the east of this area. Delineation for BNs is also not complete to the east and south of B10-5 (0-6"). Delineation for metals (As, Ba, Cu, Ni, Zn, hex-Cr) at 2-4 ft to the south of this location is not complete. Delineation to the residential direct contact soil cleanup criteria is necessary for BNs and metals. Delineation shall proceed across the property boundary as these contaminants are

considered site specific.

A proposal to address these data gaps shall be presented for NJDEP review. Remedial options shall also be evaluated within the next report.

1. Wooded Area Surrounding Sludge Beds

The open and wooded area surrounding these beds has been used for the disposal of various debris. During a 1993 site inspection drums, pails, concrete and wood blocks were noted to be present. Whether or not all drums were empty could not be determined at that time. Pipes were also found of unknown origin and two outfalls behind sludge bed 2 were discovered. It had been determined that the pipes and outfalls discharge to Gold Run stream. The outfall discharges were addressed in conjunction with Gold Run stream. Refer to comments noted below.

As part of the facility decommissioning process, all debris present on the ground surface in the wooded areas adjacent to the sludge beds is proposed to be removed. Soil sampling will be performed if visual inspections and the nature of the debris removed dictates the need. Parameters for analysis will be based on the soil conditions and the nature of the debris.

The removal of all debris within the wooded areas was previously required within the 12/17/93 NJDEP letter. The proposal for removal is acceptable, provided all conditions as noted in the 12/17/93 letter are met. It should be noted that the presence or absence of staining is not always an adequate indicator of historical spills and/or disposed substances. Field screening may be utilized to determine what percentage of samples requires VOC analysis. Most importantly, the contaminants previously detected onsite should be taken into consideration when deciding upon sampling parameters.

2. Rust Colored Stain

A rust colored stain was observed during the June 1997 site inspection in the area to the north of the sludge bed No. 4. In addition several areas of possible fill placement were identified on aerial photographs.

As proposed three test pits (TP10-1, 10-2, and 10-3) were excavated north of sludge bed no. 4. Two samples were collected from each test-pit and analyzed for BNs and PPmetals.

The rust-colored material on the ground surface was tentatively identified by plant personnel as water-softener resin beads, a material used in the facility powerhouse. The thickness of the material was 1 inch. The underlying soils were sampled during this 1998 phase (refer to results for TP10-1).

Test-pit TP10-1 was excavated in the area of the rust colored stained area. Slag/cinders were observed at 6-12" and native silt/sand was identified at 4.0 ft at this location. Samples were collected at 6-12" and 9.0 ft. Both samples were analyzed for BNs and PPmetals. VOCs and PCBs were not included, as the field observations did not dictate. All BN results were below the residential direct contact soil cleanup criteria. Only arsenic was detected above residential direct contact soil cleanup criteria = 30 ppm.

Fill material was encountered to 4.5 ft within test-pit TP10-2. Bedrock was encountered below the fill material. No staining was observed during excavation. Soil samples were collected at 6-12" and 6-6.5 ft. All samples were analyzed for BNs and PPM. All concentrations detected are reported to be below residential direct contact soil cleanup criteria. (Note: BN MDLs are elevated).

Fill material was encountered to 7.5 ft at test-pit TP10-3. No staining was observed. Samples were collected at 3-4.0 ft and 8-9.0 ft and analyzed for BNs and PPM. All results are below the residential direct contact soil cleanup criteria.

No significant contamination was detected during the test-pit investigation. The fill material did not contain any by-products as observed elsewhere within this area. No further investigation is proposed for this area.

No additional sampling is necessary specific to these three test pit investigations, however the contamination noted at TP10-1 (As) and TP10-2 (possible BNs) shall be further investigated in conjunction with the completion of delineation for Areas 9 and 10. Note: Due to the elevated BN MDLs at TP-10-2, the BN ND results are considered unacceptable. In addition TP10-3 is in the vicinity proposed for additional surface investigation. It is quite possible that surface soils at this location are likewise contaminated.

No additional actions are necessary with regard to the rust-colored soils.

3. Gold Run Downstream of Area 9 Parking Lot Drain Outfall

Sediment and surface water samples (S10-1 and SW10-1) were collected at the stormdrain outfall into Gold Run stream. The samples were analyzed for BN, PPM, hex-Cr, and grain size. Note: TOC was mistakenly omitted by the laboratory. The sediment results report As, Cr, Cu, Pb, Ni, and Zn above the baseline ecological screening guidelines. The surface water results only report the detection of Zn, however the concentration is below the surface water quality criteria.

An additional sample downstream of S10-1 is proposed to be collected for PPM analysis. More specifically the sample will be collected downstream of S10-1 but upstream of the confluence of Gold Run and the drainage swale running east along the southern boundary of the site. Sample S10-1 will also be resampled for TOC.

The above proposal is acceptable. Particle grain size and TOC shall also be included at the proposed location. As previously stated due to the elevated levels of metals detected in Gold Run sediments a baseline ecological evaluation is required for this area of concern. The Technical Requirements for Site Remediation (7:26E) should be consulted for specific requirements pertaining to this evaluation.

K. Area 11 = Undeveloped Parkland Area

This area consists of undeveloped land intersected by Gold Run Pond/Creek. A picnic area and former baseball diamond were located in the northeast corner of the area. The area was supposedly never used for manufacturing purposes. Drum burial was discovered. All drums and contaminated soil was removed during the 1996 MOA RI as discussed below.

1. *Suspected Barium Chromate Drum Disposal Area (MOA Area A)*

It has been determined that at one location and one time only (1950's), drums of Barium Chromate waste were buried within the undeveloped park-land area. It was estimated that 40 drums were buried at that time. A geophysical survey was conducted during the 1994 RI. The results (May 1996 RIW) reported an anomaly in the vicinity of the suspected disposal area. Test trench sampling of the area was conducted. Drums were encountered at approximately 5 ft below surface grade.

In Nov. 1996 as part of the MOA investigation/workplan 98 drums and all visually contaminated soil were removed from the area. Ground water was encountered at 5.2 ft, just below the tops of the drums. Dewatering of the excavation was necessary. The final excavation depth = 7.5 ft.

The drums contained what was believed to be material produced by the plant in an attempt to make use of unspent chromic acid. The product produced was determined to be unsuitable for sale and was then drummed for burial.

Numerous samples were collected during the remediation of this area. Samples were collected from individual drums, contaminated soils, clean soil, and the water from within the excavation. Samples of stockpiled soil were also collected for possible reuse. Elevated levels of Ba, Cr, Hex-Cr, Zn, TCE, VC, and cis 1,2 DCE were detected.

Confirmation sampling was conducted. Eight post-ex samples (MOA-A-ConfS1 to S8) were collected from the base and sidewalls of the excavation. All samples were analyzed for VOC, BN, PCBs, PPM, Ba, and CN. The results were all below residential direct contact soil cleanup criteria.

Soil reuse sampling was also conducted. During the excavation of the drums, the top 3.5 ft of surface soil was stockpiled separately. Six samples (MOA-A-CS1 to 6) were collected of this material in hopes of supporting the reuse of the soil in the original excavation. The results report the presence of metals, however levels were not above the residential direct contact soil cleanup criteria. This soil was reused on-site as backfill.

Monitoring well sampling (MW-21) within this area reported the presence of TCE, cis 1,2 DCE, PCBs, Ba, Cd, Cu, Pb, and Zn.

No additional sampling was conducted during 1998 nor is currently proposed. A supplemental ground water investigation is proposed to address ground water conditions upgradient and downgradient of the excavation. A bedrock monitoring well (MW-23) will be installed.

No further sampling was previously approved for this area of concern. The previous post-ex samples confirmed that the contamination associated with the drummed materials had been adequately removed.

2. Gold Run Pond

This pond and stream are free flowing towards the south/southwest. As an area of concern it shall be noted to start at Parkway Ave. just beyond storm outfall 001.

Sediment and water samples have been routinely collected immediately downstream of outfall 001 as part of the NJPDES program. Discharges have been noted to have occurred as well as the observance of oil sheens. Sediment sampling was also performed during the 1994 RI activities. TPH, PAHs, PCBs, As, Be, Cd, Cr, Cu, Pb, Hg, Ni, and Zn were all detected within Gold Run Pond.

As proposed additional sediment and surface water samples were collected. Seven sediment samples (S11-1 to 5, 7, and 8) and four surface water samples (SW11-1, 2, 3, and 7) were collected for TPH, BNs, PPm, PCBs, TOC, and hex-Cr. Samples S11-1 and 2 were collected from Gold Run, south of the pond. Samples S11-4 and 5 were collected directly below Parkway Ave. storm sewer pipes. Sample S11-7 was collected from the municipal storm sewer pipe beneath Parkway Ave. (upstream of ground water stormwater discharge). Sample S11-8 was collected downstream of S11-7 but upstream of the pond. Lastly, samples S11-6 and 11-3 were collected within Gold Run Pond. Note: The GM stormwater discharge was not sampled due to a lack of water at the time of sampling.

The results for samples collected downgradient of Gold Run Pond indicate that TPH, BNs, PPmetals, and PCBs are present at levels that exceed the freshwater sediment screening guidelines. The samples collected within the Gold Run Pond area (11-3, 11-4, 11-5, and 11-6) all report the same site specific contaminants (e.g. BNs, PPm, PCBs, and TPH). The

samples collected upgradient of Gold Run (S11-7 and 11-8) likewise report elevated levels of BNs, PPM, and PCBs.

With regard to the surface water sampling conducted, the results report the detection of VOCs (TCE), Hg, Pb, Cr, Cu, and Zn.

GM contends that the source of the TCE is upgradient of Gold Run pond and the GM property. In addition GM indicates that there may be an upstream/offsite source for the PCBs, PAHs, Hg, and other metals. No additional onsite investigation of Gold Run is proposed.

In terms of the possible sources of the contaminants detected in onsite sediments, it will be difficult to distinguish what if any contamination may be coming from offsite sources. The majority of contaminants observed within Gold Run Pond as well as the downgradient stream are related to onsite operations. At this point in time, additional sediment sampling will not provide any additional useful information. However it should be determined if particle/grain size analysis was completed. No results appear to have been reported.

As stated previously, the levels detected in sediments during the first phase as well as this last delineation phase warrant the completion and submittal of a Baseline Ecological Evaluation (BEE) as specifically stated in the Technical Requirements for Site Remediation 7:26E section 3.11. Future sampling and remedial requirements will be based on the BEE.

L. Additional Comments

1. Hexavalent Chrome Analysis

Based on the previous results and the fact that most hex-Cr MDLs were elevated, Hex-Cr analysis is still required everywhere metals are being further investigated.

a. Hex-Cr Deliverables - A full laboratory data deliverables package shall be submitted for all hex-Cr soil sample results.

2. Soil Criteria

All sample results shall still be compared to the most stringent soil cleanup criteria regardless of future site use. Prior to an evaluation of remedial alternatives, the Areas of Concern ("the site") shall be completely delineated both laterally and vertically to the most stringent criteria. The majority of areas onsite do not appear to have been delineated and are further discussed above. GM should also be aware of a few changes in the cleanup criteria (e.g. Be, Cd, xylene). The most recent version of the soil cleanup criteria is available on NJDEP's web page.

NJDEP acknowledges the difficulty in establishing background concentrations or being able to differentiate between potential on and offsite sources. However the requirement for complete delineation of all contaminants detected on the site to date is still applicable. GM may submit rationale and site data to reduce this requirement.

3. Sediment Criteria

All sediment results both past and future shall continue to be compared to the Ontario Lowest Effect Levels for freshwater sediments (Persaud et al. 1993). NJDEP currently has a guidance document available that lists all the screening criteria.

4. Baseline Ecological Evaluation (BEE)

A BEE shall be conducted pursuant to the Tech. Regs. 7:26E-3.11 for all areas requiring sediment and/or surface water sampling. Further ecological investigation pursuant to 7:26E-4.7 is required in areas already exhibiting contaminant concentrations within sediments and/or surface water. This phase of the investigation shall be done immediately. This requirement should have been completed and submitted with this last report.

5. Boring Log for MW-7

It is still appropriate to include this area as part of the 500,000 gal sludge settling tank area and area fill investigation, however it does not appear that any additional investigation was performed specific to this area during the last phase of sampling. At a minimum the location shall be completely delineated to the most stringent criteria.

6. Geotech Boring No. 2

It has been confirmed that the Geotech boring (BH-2) was drilled within the footprint of the excavation for the new oil-water separator. The location is addressed along with that area of concern. This is acceptable.

7. Site Fill

Historical records, facility personnel accounts, and aerial photos indicate that fill materials have been placed in Areas 8, 9 and 10. The fill is observed to be thickest within Area 8 = up to 16.5 ft. The fill has been shown to include construction and demolition debris (wood, grass, brick, ceramic pipe, scrap metal) and manufacturing byproducts (rubber, plastic, metal, screen, cable, pipe, cloth and fabric, and glass). Also evidenced within these areas is clayey sludge, paint, pigments, and buffing compounds. The elevated levels of metals, BNs, VOCs, PCBs, and TPH appear to correspond with the presence of manufacturing by-products.

Additional characterization of the fill material and the nature and extent of contamination identified appears to be warranted. A geophysical survey is proposed for Area 9 and is further described above. Borings will be biased toward anomalies detected during the electromagnetic survey.

Additional fill characterization and investigation is certainly necessary. However GM should keep in mind that the extent of the contaminated fill shall be determined across the site, specific to areas of concern if necessary. As the fill material consists of contamination related to onsite operations, GM is responsible for complete delineation of the material which may extend onto adjacent properties. Delineation to the most stringent criteria is necessary at a minimum and shall be completed prior to determining what remedial options are appropriate.

8. Inspection Report Items

a. Former Railroad

A former rail line was encountered during the repair of the main manufacturing building fire line. Additional information was required by NJDEP. The rail spur in question was installed inside the west wall of the original building when the facility was constructed in 1938. It was used until approximately 1943 as a receiving line for various raw materials. It was replaced by the adjacent existing west-side spur. Based on the materials encountered during the fire line repair project it is assumed that the area was filled in with clean soil and crushed stone. No record or evidence of any releases in the area is known.

No sampling is proposed for this area.

To verify the nature of the material used to backfill this area a minimum of two samples shall be collected. If historical data exists that may help address this concern then it should be presented for review.

b. Slag Material

Slag material was found at the edge of the parking lot at Area 9 during the site inspection. The material was the result of an excavation that took place at the SW corner of the facility powerhouse. Additional information has been provided as requested.

Coal was burned in the power house boilers from 1938 until approximately 1957. Ash and cinders (slag) were stored in an overhead hopper located at the SW corner of the powerhouse where the fuel-oil unloading area pad is currently located. The ash and cinders were discharged from the hopper into railcars.

A grab sample (GRB9-1) of this material was obtained as part of the Area 9 investigation. The sample was analyzed for PPM and PAHs as required. Please refer to the comments for Area 9 (Eastern Edge of Former Equipment Storage Area). NJDEP has concluded that further investigation is necessary in this area in general. Any additional investigation should also address the concern with deposition of additional material related to the coal fired boilers.

c. Slag Material

Slag material was also noted at the railroad track near the Water Tank. This material was also believed to be related to the coal fired boilers in the Power House. A sample (GRB2-1) of these cinders was collected from the former rail bed near the Water Tank and analyzed for PPM and PAHs as required by NJDEP. Please refer to the comments for Area 2 (Area of Cinders/Slag). Additional sampling is proposed for this material.

d. Hydraulic Recycling Tank Containment Floor

Cracks, patches, and oil staining were noted in the diked containment structure floor during the site inspection. At this time it is still unclear as to whether or not the tank and containment structure will be demolished. The concern with potential releases of hydraulic oil in this area is being addressed in conjunction with the VOC investigation. Please refer to the comments above for Area 2 (Solvent AGST area).

e. Staining Near Railroad Tracks

Staining was noted along the tracks opposite the No. 6 AGST and near the gondolas and a dumpster. Cracks in the concrete in the area of staining were also noted. This area was to be addressed during the demolition and removal phase, however removal of the pavement within this area may no longer be conducted.

GM does not agree that this area warrants the level of concern that NJDEP has expressed, however a proposal to address this staining will be submitted in an addendum to the RI workplan.

The above proposal is acceptable. Analysis for TPH, PAHs, and PPmetals was required.

f. Motor Storage Area

A storm drain within this area discharges directly to a stream. Staining was also observed within this area. The discharge is addressed under Area 7 above.

Refer to comments for (e.) Staining Near Railroad Tracks.

The proposal to address this area in a RI addendum is acceptable. Analysis for TPH, BN, PPM, and PCBs was required.

g. Staining and Cracks in Die Storage Area

This area was addressed as part of the Area 7 investigation. Refer to the comments for Drum Storage Area and Die Storage Area.

h. The South Lot Staining

GM attempted to locate the staining that is referenced by NJDEP, however was unable to identify the areas. GM proposes to re-inspect the area together with NJDEP representatives during the next site inspection to determine if other areas of staining are present which have not been addressed by the investigations performed to date. This proposal is acceptable.

i. South Lot Staining, Paving Cracks, and Leaking Machines

Worst case locations were determined and sampled during the 1998 RI phase. NJDEP acknowledges this comment.

j. Fire Training Area

This area was re-inspected by GM. No area of yellow staining other than that described in the 9/16/97 GM response letter was observed. The yellow staining observed by GM consisted of surficial rust staining with yellow paint chips scattered within the area. The presence of these materials is believed to be the result of plant personnel storing a bobcat/backhoe loader-bucket on the ground surface in this area.

Additional surficial sampling was conducted in response to NJDEP's approval letter.

The additional sampling performed was for BTEX and does not satisfy the concern with TPH, PAHs, and metals.

k. Staining Outside Vehicle Wash Area

Please refer to Area 5 comments for this AOC.

l. Storm Drain Area Near Water AGST

A proposal to inspect this drain and collect soil samples if appropriate was found to be acceptable. No comments specific to this area were noted within the RI report. Whether or not the inspection and/or sampling were performed shall be clarified.

m. Open Excavation Near Water Clarifier

This area was not specifically addressed within the response section of the RI report. Whether or not the area was backfilled with clean fill as proposed shall be clarified. Also whether or not the stockpiled material was characterized and disposed of offsite should be documented.

M. General Soil Comments

1. Site Maps

In accordance with section 4.8 of the Technical Requirements for Site Remediation all ground water, soil, sediments and other sample locations; sample depths and contaminant concentrations shall be plotted on a scaled site map. The review of the data within this report was cumbersome due to the lack of sufficient maps pertaining to individual areas of concern and the fact that the sample results and depths were not depicted on the maps provided. It is recommended that individual areas of concern be mapped with sample locations and results plotted. The maps provided within this report are scaled at 1" = 100'. Accurate sample plotting is difficult utilizing this scale. Maps that display the areas of concern in a larger scale will aid in the Departments review of the next submission.

II. Data Review

The Department has reviewed the 28 laboratory analysis reports prepared by EMSL Analytical, Inc., 107 Haddon Avenue, Westmont, NJ 08108, NJDEP No. 04653.

The data packages were complete. The results are acceptable as presented with the exceptions noted below.

1. EMSL Project: 98079196, Volatile Organic: 98-55503 & 98-55504 were not included in the shipment to the subcontracted laboratory and therefore were not analyzed. 98-55504 was analyzed by EMSL on 11/5/98 exceeding hold time by 14 weeks. These results are rejected.

2. There were a number of samples with PQLs exceeding the applicable remediation standards. N.J.A.C. 7:26E-3.13(c)3.ii states in pertinent part that samples with method detection limits (MDLs) (or practical quantitation levels (PQLs) if available) exceeding the applicable remediation standard *shall* be identified and an explanation provided in the key table. GM is notified that samples with MDLs or PQLs exceeding the applicable remediation standard may result in additional sampling be required.

3. EMSL Project: 98079714, the sample (solid) was collected on 07/30/1998. The PCBs

were analyzed by method 8080. After July 1, 1998, PCBs shall be analyzed by method 8082.

4. The following deficiencies shall be noted. Additional sampling may be necessary based on these deficiencies.

a. EMSL Project: 98089948

The following lab sample identification numbers have been noted as having MDLs elevated above the soil cleanup criteria for PAHs.

Laboratory Sample ID

9859852B

9859854B

9859857B

9859858B

9859860B

9859861B

9859862B

b. EMSL Project: 98079482

The following lab sample identification numbers have been noted as having MDLs elevated above the soil cleanup criteria for PAHs.

Laboratory Sample ID

9857310B

9857312B

9857314B

c. EMSL Project: 98123585

Lab Sample # 9880102B, MW-13, aqueous, SVOC extraction holding time exceeded by 17 days, the results are unqualified by the laboratory.

d. EMSL Project: 98079422

PQLs exceeding the applicable remediation standard.

e. Hexavalent Chromium

Please find below a copy of the one page which identifies the NJDEPs Hexavalent Chromium Analysis Requirements. All of the items listed shall be submitted for all of the samples for which hexavalent chromium analyses were performed, including those samples for which the result may have been non-detect.

1. On June 13, 1997, the USEPA promulgated a series of new and revised analytical methods in the USEPA document, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, Third Edition (SW-846)." The promulgated series of SW-846 methods became effective December 13, 1997. The promulgated methods include analytical methods for the determination of hexavalent chromium in various matrices. The hexavalent chromium methods are identified as follows:

- a. Method 3060A, USEPA SW-846 Third Edition, Alkaline Digestion for Hexavalent Chromium. Method 3060A is a procedure for extracting hexavalent chromium from soluble, adsorbed, and precipitated forms of chromium compounds in soils, sludges, sediments, and some industrial waste materials.
- b. Method 7196A, USEPA SW-846 Third Edition, Chromium, Hexavalent (Colorimetric). Method 7196A is used to determine the concentration of dissolved hexavalent chromium in EP/TCLP characteristic extracts and ground waters.
- c. Method 7199, USEPA SW-846 Third Edition, Determination of Hexavalent Chromium in Drinking Water, Groundwater and Industrial Wastewater Effluents by Ion Chromatography. Method 7199 provides procedures for the determination of hexavalent chromium in drinking water, groundwater, and industrial wastewater effluents.

2. Pursuant to N.J.A.C. 7:26E-2.1(a)13i, The Technical Requirements for Site Remediation, full laboratory deliverables are required for all hexavalent chromium soil sample results data.

3. The following QA/QC documentation along with the analytical results shall be submitted.

- a. Date and time of analysis
- b. Daily Calibration Curve including a blank (with correlation coefficient calculated)
- c. Calibration Check Standards with percent recovery calculated and standard amount
- d. Calibration Balnks
- e. Sample weight/volume
- f. PH adjustment step information
- g. Preparation Blank/Method Blank
- h. Pre-digestion spike analysis (if required) including the spike amount
- i. Post-digestion spike analysis including spike amount
- j. Calculation for both spike recoveries
- k. Duplicate Analysis with relative percent deviation calculated
- l. Absorbance readings
- m. Background Correction Absorbance readings
- n. Final concentrations corrected for percent moisture
- o. Percent Moisture log
- p. Digestion log

q. Lab Control Sample, if performed

4. Please be advised that once the digestion process is started, it shall be taken to completion. In addition, the analysis via method 7196A shall be done within one hour after the last sample has been digested.

III. Ground Water Conditions

A. Investigation Area 1 = Main Manufacturing Building and East Parking Lot

1. Process Wastewater Sewer Lines and Manholes

GM proposes to install one overburden or shallow bedrock monitoring well 300 feet north of existing well MW-18. GM indicates that the purpose of the well will be to provide additional information on groundwater quality and hydraulic gradients at the water table down gradient of the process sewer system and manufacturing operations in the north end of the manufacturing building. The well will be sampled twice for analysis of PPM, BN and VO.

Field parameters, TDS, pH, dissolved oxygen, temperature and specific conductance, shall be added to the list of proposed analytes for all required ground water samples.

GM shall detail the method that will be used to collect ground water samples. The method shall be submitted as an addendum to the workplan for Department approval. This comment applies to all ground water sampling.

While the proposed location of the monitor well is acceptable to the Department, additional wells will be necessary to characterize potential impacts to ground water from the process wastewater sewer lines after additional data (soil analytical data and pipe integrity data) is submitted to the Department.

2. Existing Plater #12 Pit

GM proposes to collect a ground water sample using a direct push method at the south side of this pit. The ground water sample will be analyzed for PPM and CN. Additional wells are proposed to be installed as appropriate to determine the extent of any groundwater contamination identified.

GM shall provide the basis for limiting analytical parameters to PPM and CN (a list of chemicals used in and around the plater). The proposed location of the ground water sample is acceptable to the Department. Additional ground water sampling may be warranted based on the results of soil sampling in this area.

2. Existing Black Phosphating System and Former Plater #5

GM proposes to collect a ground water sample using a direct push method at the downgradient side of this pit. The ground water sample will be analyzed for PPM and CN. Additional wells will be installed as appropriate to determine the extent of any groundwater contamination identified.

GM shall provide the basis for limiting analytical parameters to PPM and CN (a list of chemicals used in and around the plater). The proposed location of the ground water sample is acceptable to the Department. Additional ground water sampling may be warranted based on the results of soil sampling in this area.

4. Former Platers #1 through 4, 6 through 11, and the Former Zinc Barrel Plater

An overburden ground water sample will be collected for PPM and CN analysis from the test boring using direct push method. If overburden ground water is not present, a shallow bedrock well will be installed at the test boring location and the well will be sampled twice for PPM and CN.

The above proposal is acceptable. GM shall provide the basis for limiting analytical parameters to PPM and CN (a list of chemicals used in and around each of these platers is required).

5. Scrap Metal Handling Pits

One overburden or shallow-bedrock well will be installed at the south end of the scrap pits located in the southwest corner of the manufacturing building. The well will be screened across the water table. The well will be sampled twice for PPM, BN and VO. If LNAPL is encountered it will be sampled for VO, BN and PCB.

The proposal is acceptable. The ground water as well as any LNAPL shall also be analyzed for the presence of PCBs.

6. Former Die Cast Area

A single overburden or shallow bedrock well is proposed at the southeast corner of the former die cast area. Ground water will be sampled twice for PPM, BN and VO.

The above proposal is acceptable.

7. Former Wastewater Treatment System in the De-ion Building and the Concrete Containment Unit on the South Side of the De-ion Building

An overburden ground water sample is proposed to be collected for analysis of PPM and CN.

The above proposal is acceptable. GM shall provide the basis for limiting analytical parameters to PPM and CN (a list of chemicals used in this area is required). It is not clear why analysis for priority pollutant metals is proposed for this AOC and TAL metals for other AOCs. This issue shall be clarified.

8. Former Gasoline UST Beneath the Solution Storage Room

Ground water samples are proposed to be collected for VO +xylene analysis from each of five borings. The borings will be located outside of the south wall of the solution storage room.

The proposal is acceptable provided that lead is added to the ground water analysis. The Department assumes that TCL volatile organic compounds will be analyzed (as proposed for other AOCs in the RIWP).

B. Investigation Area 2 = Former 5,000 gallon Paint Thinner/4,000 gallon Solvent AST Area

Engineering drawings from 1951 and 1962 indicate that the initial construction of the secondary containment for the above ground storage tanks in this area was lined with crushed stone (not concrete as originally thought). The drawings indicate that the containment area included one tank for storage of a solvent name Solvesso (Exxon Corp.) and that a second kerosene storage tank was added in 1962. The drawings indicate that the original floor of the tank basin was lined with crushed stone (not concrete).

General Motors shall submit the chemical composition of Solvesso (manufactured by Exxon Corp.). General Motors shall propose to analyze all samples from this area for chemicals found in Solvesso in addition to the currently proposes analytes. Since trichloroethylene was detected in the soil, GM shall indicate if trichloroethylene was ever used or disposed at this location.

The consultant indicates that the above ground tanks in this area were originally connected to the main manufacturing building by underground piping which ran beneath the facility driveway to a pit located at column KK-44 at the west wall of the building.

Depending on the results of the soil investigation of the underground piping that connects the tanks to the building, additional ground water samples may be required in this area.

The consultant proposes to install one overburden monitoring well at a location within or immediately downgradient of the limits of contamination. The consultant proposes to analyze samples from the well for VO's. If PAHs or TPH are detected in soils above impact to ground water cleanup criteria, relative to the investigation of the hydraulic oil

tank, the consultant will add these parameters to the ground water sample analysis.

The above proposal is acceptable.

C. Investigation Area 3

1. Former Fuel-Oil Transfer Area

An overburden ground water monitoring well will be installed down gradient of the area of soil contamination to determine the impact of fuel oil to overburden ground water. Ground water samples will be analyzed for TPH, TCL-VO, and TCL-BN.

The above proposal is acceptable to the Department.

D. Investigation Area 7 = Die Storage and Former Sludge Drying Bed No. 5

1. Former Sludge Drying Bed

Overburden well MW-22 installed in 1998 was dry in October 1998. If ground water is present in this well, GM proposes to sample the well twice for TAL metals plus cyanide, TCL VO, TCL SVO and TCL PCBs. If MW-22 is dry and sampling is not possible, a shallow bedrock monitor well is proposed to be installed and sampled as above.

The Department requires that GM submit a detailed map of Area 7 that includes the location of former sludge drying bed No. 5. It is not clear from Figure 2 of the report if MW-22 is in an acceptable location to monitor discharges to ground water from the sludge bed. In addition, a monitor well shall be installed between the locations of SB-7-SO-3 (1994 soil sample) and B7-1 (1998 soil sample) to determine if ground water is impacted in this area. The SB-7-SO-3 and B7-1 contained elevated concentrations of trichloroethylene and, therefore, a well is required at this location to determine if ground water is impacted. The well shall be sampled twice for TAL metals plus cyanide, TCL VO, TCL SVO and TCL PCBs.

E. Investigation Area 8 = Wastewater Treatment Plan

1. Ground Water Quality in the WWTP area

GM indicates that cyanide was detected above its ground water quality criterion of 200 µg/ℓ in monitor well MW-11 at a concentration of 1300 µg/ℓ. GM proposes to sample MW-11, MW-7, 7A, 9A, 10, and 12 for cyanide. GM also proposes to install overburden and bedrock monitoring wells at the southeast corner of Area 9 parking lot and installation and sampling of a bedrock monitoring well south of Sludge Bed No. 1. It is intended that the installation and sampling of these wells will provide information on ground water quality downgradient of the east end of the WWTP.

In addition to the detection of cyanide in this area, lead, nickel, sodium and trichloroethylene have been detected above their respective Class IIA ground water quality criteria. Therefore, it is required that ground water samples also be analyzed for TAL metals, and TCL-VO. In accordance with N.J.A.C. 7:26E-4.4(h)3.i. GM shall delineate the vertical and horizontal extent of ground water contamination detected at MW-11. In addition the sources of this ground water contamination shall be delineated and identified on a map.

The proposal to delineate contamination in this area shall include the installation of at least one bedrock monitor well adjacent to MW-11 for vertical delineation. During installation of the bedrock well, GM shall comply with N.J.A.C. 7:26E-4.4(g)5. & 6. These are the requirements for bedrock core logging and determination of strike and dip of fractures. Also, GM shall propose to delineate the horizontal extent of contamination in the overburden zone. The Department recommends the use of a direct push ground water sampling method to delineate the extent of ground water contamination in the overburden zone to fine tune placement of permanent monitor wells.

F. Investigation Area 9 = Power House Parking Lot and Former Empty Basket Storage Area

1. Site Fill

GM indicates that filling occurred within Area 9. In addition, contaminated fill materials have been observed in test pits and soil borings. GM proposes to install a single overburden well immediately down gradient of test pit TP9-3. Two additional overburden wells and one bedrock well will be installed along the eastern edge of the Area 9 parking lot.

In accordance with N.J.A.C. 7:26E-3.1(c)1.vi. GM shall submit an interpretation of the aerial photographic history of the site. Based on the interpretation, GM shall plot all areas where contaminated fill may have been placed on a map. The map shall be submitted to the Department for review.

The proposal to install an overburden well immediately downgradient of test pit TP9-3 is acceptable. However, since it appears likely that ground water in this area will be contaminated, GM may wish to grab a ground water sample from TP9-3 using a direct push ground water sampling method to determine if contamination is present. If ground water is contaminated, delineation of the lateral extent of contamination could be completed with the direct push method in a single phase of investigation. GM could then propose to install permanent monitor wells and or a ground water remediation system if necessary.

The proposal to install two additional overburden wells and one bedrock well is also acceptable. As above, GM may wish to delay installation of any permanent wells until

after delineation of ground water contamination is completed with a direct push sampling method. Additional monitor wells may be required depending on the results of soil sampling in this area.

2. Ground Water Quality in the Area of the Sludge Beds

GM proposes to install one bedrock monitor well on the south side of Sludge Bed No. 1. The well will be sampled twice for analysis of TAL metals and cyanide, TCL VO, TCL BN and TCL PCB compounds.

GM's proposal to install the bedrock monitor well is acceptable. In addition, a bedrock monitor well is required adjacent to each of the following monitor wells, MW-2, MW-3, MW-4, and MW-5. These wells are required to determine ground water quality in the bedrock aquifer since each of the units was found to contain some level of contamination during the 1994 RI sampling activities. The wells shall be sampled twice for TAL metals and cyanide, TCL VO, TCL BN and TCL PCB compounds. Bedrock shall be characterized in accordance with the Technical Requirements for Site Remediation.

G. Former Drum Burial Area in Investigation Area 11

GM indicates that MW-21 contaminated with elevated levels of chromium (810 µg/l). GM proposes to install two additional overburden wells at locations east and west of MW-21. GM will sample the wells twice for PPM and VO.

The Department points out that MW-21 also had exceedances of trichloroethylene (this compound was detected in soils during drum removal operations). GM's proposal to install two additional overburden wells is acceptable. GM may also use direct push ground water sampling methods to delineate the extent of ground water contamination in the area. GM is also required to delineate the vertical extent of contamination in this area and shall submit a work plan that addresses this requirement.

H. February 1999 Interim Remedial Investigation Report

1. Gore Sorber Results

GM states, "Contaminated surface water discharging into the overburden soils and downward into bedrock ground water in this area (where Gold Run crosses Parkway Ave) may be the cause of the trichloroethylene and DCE detected in soil vapor at station 1500E+3.3N".

The Department agrees that trichloroethylene contaminated surface water is entering Gold Run from the culvert along Parkway Avenue. However, GM shall provide additional hydraulic data to support their theory that contaminated surface water is re-entering the ground water system.

GM concludes that trichloroethylene contamination observed in MW-16A may be the result of contaminated surface water entering the site in Gold Run.

GM shall provide hydraulic data to support their contention that contaminated surface water may result in ground water contamination in MW-16A.

2. Former Gasoline UST Area Wells

GM makes no proposal concerning ground water contamination detected in the former UST area wells.

GM shall submit a proposal to delineate the horizontal and vertical extent of ground water contamination in this area.

3. Ground Water Elevations

GM indicates that they collected long term ground water level data in MW-14A and MW-17A. GM indicates that they have not determined if there is an influence on these wells by the recovery wells located at the Naval Air Warfare Center.

The Department has obtained the pumping records for the Navy Site and has attached them to this letter. GM shall evaluate the data and submit conclusions regarding the relationship between pumping at the Navy site and water levels at GM.

General Motors shall inform the NJDEP 14 days in advance of performing field work so that a representative from the Department can be present.

III. General Requirements

1. Delphi Interior and Lighting Co. shall perform all actions as outlined in the RIW, and conditioned in this approval. If any change in methods outlined in the RIW is necessary, Delphi Interior and Lighting Co. shall inform BEECRA in writing prior to implementation.

2. Delphi Interior and Lighting Co. shall notify the Case Manager at least 14 calendar days prior to implementation of all field activities included in the RIW. If Delphi Interior and Lighting Co. fails to initiate sampling in accordance with the approved schedule, any request for an extension may be denied.

3. Delphi Interior and Lighting Co. shall collect and analyze all samples in accordance with the protocol outlined in the most current edition of the NJDEP's "Field Sampling Procedures Manual" and the Technical Requirements for Site Remediation (TRSR), N.J.A.C. 7:26E.

4. Delphi Interior and Lighting Co. shall submit all reports or additional workplans, in

triplicate, in accordance with the approved schedule. It is important that the results of the above required investigation be presented with a proposal for the next phase of investigation and/or remediation. Please note that only one copy of the Quality Assurance/Quality Control deliverables is needed. All reports shall follow the requirements of the TRSR, N.J.A.C. 7:26E. Technically and administratively incomplete submissions, not prepared pursuant to N.J.A.C. 7:26E, may be rejected.

5. The proposed schedule does not provide the necessary detail to be approved. Therefore, Delphi Interior and Lighting Co. shall submit a revised schedule that includes all of the above required actions. The required schedule shall include a specific date the next report will be provided. The required schedule shall be submitted within 30 days of receipt of this letter.

6. If contamination is determined to exist above a level found acceptable by NJDEP, Delphi Interior and Lighting Co. may prepare and submit either a Remedial Investigation Workplan or a Remedial Action Workplan pursuant to N.J.A.C. 7:26E. However, in accordance with N.J.S.A. 13:1K-9, Delphi Interior and Lighting Co. may elect to remediate the site without prior submission or approval from the NJDEP, except in cases involving a remedial action of ground water or surface water, or for the closure of an underground storage tank subject to N.J.S.A. 58:10A. If contamination exists on-site, but has not been fully delineated pursuant to N.J.A.C. 7:26E-4, then such delineation shall be completed as a Remedial Investigation which meets the criteria of N.J.A.C. 7:26E.

7. Any remedial action performed, or proposed in a Remedial Action Workplan, shall be in accordance with N.J.S.A. 58:10B-12.

8. Any proposal to leave contaminant concentrations on-site exceeding the NJDEP's current residential cleanup criteria, shall be in accordance with the Technical Requirements for Site Remediation N.J.A.C. 7:26E-5.1 and 5.2. Delphi Interior and Lighting Co. shall also submit proof of acceptance of the non-residential cleanup criteria by the current property owner.

9. Pursuant to the TRSR, N.J.A.C. 7:26E-3.13(c)3v, all analytical data shall be presented both as a hard copy and an electronic deliverable using the database format outlined in detail in the current HAZSITE application or appropriate spreadsheet format specified in the NJDEP's electronic data interchange manual.

For further information related to electronic data submissions, please refer to the Site Remediation Program's (SRP's) home page at the following internet address:

<http://www.state.nj.us/dep/srp> The **Regulations and Guidance** page of this web site has a section dedicated to HazSite which includes downloadable files, an explanation of how to use these files to comply with the NJDEP's requirements, the SRP's Electronic Data Interchange (EDI) manual, and **Guidance for the Submission and Use of Data In GIS**

Compatible Formats Pursuant to "Technical Requirements for Site Remediation".

If you have any questions, please contact the Case Manager, David Bean, at (609) 633-7244.

Sincerely,

A handwritten signature in black ink, appearing to read "John Graham", written in a cursive style.

John Graham, Supervisor
Bureau of Environmental Evaluation,
Cleanup and Responsibility Assessment

c: Christine Lacy, BEERA
William Hanrahan, BGWPA
Health Officer

NAVAL AIR WARFARE CENTER, TRENTON
GROUNDWATER TREATMENT SYSTEM
DAILY FLOW DATA
FEBRUARY 1998

DATE	DAILY FLOW in gallons
Feb-01	7200
Feb-02	6300
Feb-03	5700
Feb-04	5000
Feb-05	4000
Feb-06	3100
Feb-07	2600
Feb-08	1900
Feb-09	3600
Feb-10	8500
Feb-11	0
Feb-12	0
Feb-13	11600
Feb-14	22300
Feb-15	22400
Feb-16	22500
Feb-17	22500
Feb-18	22500
Feb-19	22700
Feb-20	22400
Feb-21	22300
Feb-22	22400
Feb-23	22500
Feb-24	22000
Feb-25	22600
Feb-26	18800
Feb-27	3600
Feb-28	22700
Total	373700

NAVAL AIR WARFARE CENTER, TRENTON
GROUNDWATER TREATMENT SYSTEM
DAILY FLOW DATA
MARCH 1998

DATE	DAILY FLOW in gallons
Mar-01	22400
Mar-02	22500
Mar-03	25900
Mar-04	15100
Mar-05	0
Mar-06	0
Mar-07	0
Mar-08	0
Mar-09	0
Mar-10	0
Mar-11	0
Mar-12	0
Mar-13	0
Mar-14	0
Mar-15	0
Mar-16	0
Mar-17	0
Mar-18	0
Mar-19	0
Mar-20	0
Mar-21	0
Mar-22	0
Mar-23	0
Mar-24	400
Mar-25	2700
Mar-26	5200
Mar-27	42100
Mar-28	41200
Mar-29	24600
Mar-30	0
Mar-31	24600
	38300
Total	265200

NAVAL AIR WARFARE CENTER, TRENTON
GROUNDWATER TREATMENT SYSTEM
DAILY FLOW DATA
APRIL 1998

DATE	DAILY FLOW in gallons
Apr-01	21300
Apr-02	39100
Apr-03	15200
Apr-04	0
Apr-05	0
Apr-06	7700
Apr-07	19800
Apr-08	26000
Apr-09	65000
Apr-10	59600
Apr-11	70300
Apr-12	51700
Apr-13	57500
Apr-14	55900
Apr-15	49100
Apr-16	58000
Apr-17	51300
Apr-18	71700
Apr-19	68800
Apr-20	62500
Apr-21	79300
Apr-22	74700
Apr-23	84400
Apr-24	76000
Apr-25	65900
Apr-26	61400
Apr-27	59700
Apr-28	60200
Apr-29	65100
Apr-30	81000
Total	1558200

**NAVAL AIR WARFARE CENTER, TRENTON
GROUNDWATER TREATMENT SYSTEM
DAILY FLOW DATA
JUNE 1998**

DATE	DAILY FLOW in gallons
Jun-01	14800
Jun-02	79200
Jun-03	77100
Jun-04	75800
Jun-05	75800
Jun-06	80500
Jun-07	76200
Jun-08	74300
Jun-09	69800
Jun-10	78800
Jun-11	78000
Jun-12	74700
Jun-13	39500
Jun-14	0
Jun-15	32500
Jun-16	75400
Jun-17	74900
Jun-18	78100
Jun-19	70300
Jun-20	58000
Jun-21	0
Jun-22	0
Jun-23	22700
Jun-24	44000
Jun-25	8700
Jun-26	38000
Jun-27	30800
Jun-28	0
Jun-29	0
Jun-30	0
Total	1421700

NAVAL AIR WARFARE CENTER, TRENTON
GROUNDWATER TREATMENT SYSTEM
DAILY FLOW DATA
MAY 1998

DATE	DAILY FLOW in gallons
May-01	64500
May-02	64500
May-03	64500
May-04	64500
May-05	64500
May-06	64500
May-07	64500
May-08	64500
May-09	64500
May-10	64500
May-11	64500
May-12	64600
May-13	64500
May-14	64500
May-15	43100
May-16	60300
May-17	79800
May-18	77200
May-19	73200
May-20	65500
May-21	45500
May-22	0
May-23	5200
May-24	0
May-25	0
May-26	600
May-27	0
May-28	0
May-29	6600
May-30	0
May-31	0
Total	1295600

JACK ROGERS TRENTON-FOOTN Fax: 609-405-0361 Voice: 609-341-8030 EXT-402 To: Mag WESSON Lt: Foster Wheeler

NAVAL AIR WARFARE CENTER, TRENTON
GROUNDWATER TREATMENT SYSTEM
DAILY FLOW DATA
JULY 1998

DATE	DAILY FLOW in gallons
Jul-01	29700
Jul-02	73100
Jul-03	73600
Jul-04	71600
Jul-05	69100
Jul-06	75000
Jul-07	77400
Jul-08	62600
Jul-09	76900
Jul-10	67600
Jul-11	59200
Jul-12	50700
Jul-13	28600
Jul-14	25400
Jul-15	71100
Jul-16	72300
Jul-17	70500
Jul-18	48900
Jul-19	0
Jul-20	0
Jul-21	30100
Jul-22	69100
Jul-23	69400
Jul-24	71700
Jul-25	69900
Jul-26	64800
Jul-27	63100
Jul-28	38600
Jul-29	0
Jul-30	4000
Jul-31	18400
Total	1602300