



## **RCRA FACILITY INVESTIGATION (RFI) WORK PLAN ADDENDUM NO. 13**

**GM POWERTRAIN BEDFORD FACILITY  
105 GM DRIVE  
BEDFORD, INDIANA**

**EPA ID# IND006036099**

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**APRIL 2006  
REF. NO. 013968 (187)**

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LIST OF ACRONYMS

|           |                                               |
|-----------|-----------------------------------------------|
| Agreement | RCRA Corrective Action Agreement              |
| AOI       | Area of Interest                              |
| CRA       | Conestoga-Rovers and Associates               |
| DNAPL     | Dense Non-Aqueous Phase Liquid                |
| Facility  | GM Powertrain Bedford Plant                   |
| GM        | General Motors Corporation                    |
| MSDS      | Material Safety Data Sheet                    |
| PCB       | polychlorinated biphenyls                     |
| PVC       | polyvinyl chloride                            |
| QAPP      | Quality Assurance Project Plan                |
| RCRA      | Resource Conservation and Recovery Act        |
| RFI       | RCRA Facility Investigation                   |
| STL       | Severn-Trent Laboratories                     |
| SVOC      | Semi-Volatile Organic Compound                |
| TCL       | Target Compound List                          |
| U.S. EPA  | United States Environmental Protection Agency |
| VOC       | Volatile Organic Compound                     |

## **1.0     INTRODUCTION**

This document presents Addendum No. 13 to the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Work Plan (RFI Work Plan) for the General Motors Corporation (GM) Powertrain Bedford Plant (Facility) located in Bedford, Indiana (U.S. EPA ID# IND006036099).

### **1.1     GENERAL**

The Facility is located at 105 GM Drive, Bedford, Lawrence County, Indiana, 47421 (Figure 1.1). The Facility produces aluminum casting products, such as transmission cases, pistons, and engine blocks. Major aluminum production processes include die casting and permanent molding. The Bedford Facility has been operating as an aluminum foundry since 1942, with major facility modifications completed in 1950, 1953, 1966, 1971, 1974, 1977, 1979, and 1980.

The Facility, located on 158 acres, contains approximately 915,000 square feet of floor space and employs approximately 1,000 people.

### **1.2     RFI APPROACH**

GM signed a Performance-Based RCRA Corrective Action Agreement (Agreement) with the United States Environmental Protection Agency (U.S. EPA) for the Bedford Facility on March 20, 2001, as amended on October 1, 2002. The signed Agreement states that GM will work with the U.S. EPA to identify and define the nature and extent of releases of hazardous waste and/or hazardous constituents at or from the Bedford Facility.

### **1.3     PURPOSE**

The purpose of this RFI Work Plan Addendum No. 13 is to present additional Site investigation activities. The proposed scope of work (SOW) is being proposed in order to provide necessary data for the completion of the CA 750 Environmental Indicator and to further support the Conceptual Site Model of limited migration of PCBs in groundwater. Many of the selected wells proposed for additional sampling have only one set of data, and further data are necessary in order to evaluate plume stability. In addition, select private wells are proposed to be resampled in order to verify concentrations that were initially reported. These proposed groundwater sampling

locations were selected based on previous groundwater samples collected in 2003 and 2005. In order to complete the delineation of PCBs in groundwater, additional monitoring well installation at off-Facility locations and additional groundwater sampling are also proposed.

## **2.0 SCOPE OF WORK**

### **2.1 GROUNDWATER SAMPLING**

Additional groundwater sampling is proposed to be conducted at groundwater monitoring wells (including vertical ports at multiple level installations) where sufficient water was previously present in the well to obtain a groundwater sample (on-Facility monitoring wells), at monitoring wells that have been installed, but not sampled to date (including the proposed monitoring wells described in Section 2.2), and at private, residential wells locations where detections of polychlorinated biphenyls (PCBs) have been reported during previous CRA sampling and where access can be obtained from the owner to sample the well. Table 2.1 provides a list of proposed wells for sampling and Figure 2.1 presents the historical analytical data for all groundwater sampling completed under the RFI. Sampling protocol will be followed, in accordance with the original RFI Work Plan (CRA, 2001). For wells with insufficient water, an attempt will be made to obtain a sample using low-flow sampling methods. If a sample cannot be collected (due to insufficient volume and/or the field parameter stabilization criteria cannot be met), then that location will be considered "dry" and will not be attempted in the future.

Newly installed groundwater monitoring wells will be developed in accordance with the procedures outlined in the RFI Work Plan. At a minimum of two weeks after well development, newly installed groundwater monitoring wells will be sampled, if a sufficient volume of groundwater is present and field parameter stabilization can be obtained. Groundwater samples will be submitted to Severn Trent Laboratories (STL) in North Canton, Ohio for analysis of PCBs (total and dissolved). Sampling, decontamination, shipping, and laboratory procedures will be followed in accordance with the RFI Work Plan and QAPP.

Upon completion of drilling activities, the newly installed wells and borings will be surveyed for horizontal location to the nearest 0.1 foot, and ground and top of casing elevations to the nearest 0.01 foot.

### **2.2 GROUNDWATER MONITORING WELL INSTALLATION**

Based on the previous results of the groundwater sampling, additional monitoring wells are proposed at various off-Facility properties, as described below. These analytical results indicate that the constituents of concern are PCBs, and therefore, this SOW

describes investigation activities for the evaluation of migration of PCBs in groundwater.

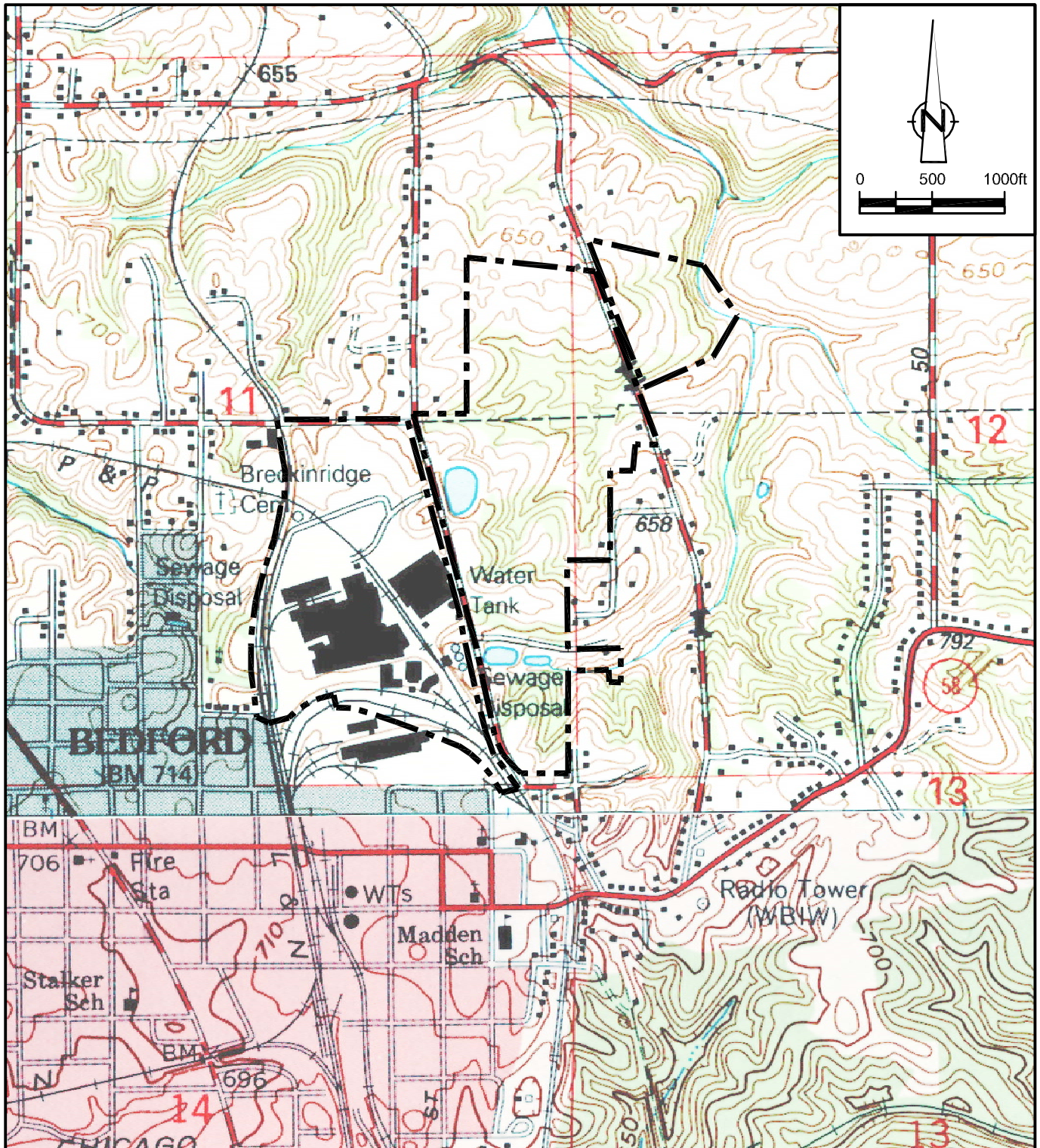
Unless otherwise stated, each monitoring well described below will be installed by coring the bedrock with a HQ core barrel. At each location, a larger diameter steel outer casing will be installed (as shallow into the bedrock as possible) prior to coring to prevent vertical migration of surface water to the corehole. Each well will be advanced through the upper, weathered bedrock surface and will be completed upon reaching more competent bedrock (rock quality index of 100 percent). The Rock Quality Index (or Rock Quality Designation (RQD)) is a calculation of the percent of rock core recovery that reflects the relative frequency of discontinuities. It is a measure obtained by dividing the sum all the pieces of rock that are four inches and longer in length, by the total length of the core run. For all of the collected cores from this project, this measure (100% RDQ), along with 100% recovery, has shown to provide an excellent correlation to competent rock within the shallow groundwater flow system (i.e., usually correlating to more massive rock found in the Salem Formation). If, during drilling, a significant permeable feature is encountered prior to reaching achieving 100% RQD and recovery, as evidence by water gain or loss, and the boring has reached a minimum depth to be below the anticipated potentiometric surface, then the initial boring will be terminated upon reaching approximately two feet of competent rock below the permeable zone encountered. This initial boring will be completed as a shallow monitoring well. A second boring would then be advanced after setting the surface casing below the total depth of the shallow wells, and drilling would continue to the intended depth.

Each groundwater monitoring well will be completed as an open hole well (i.e., open from below the surface casing to total depth). All monitoring wells will be completed at depths that are at least five feet below the expected potentiometric surface so that the open interval intersects the water table surface (if permeable features are encountered). All wells will be completed at the ground surface with a locking above ground casing protector. The locations of the proposed groundwater monitoring wells are presented on Figure 2.2. Actual locations may be altered depending upon local Site conditions (e.g., drill rig accessibility). Each newly installed well will be developed and sampled, as described above.

### 3.0 REPORTING AND SCHEDULE

Groundwater sampling and new monitoring well installation will begin within three weeks of approval of this Work Plan Addendum. It is anticipated that the groundwater monitoring activities will be completed within four months after initiation. Monitoring well installation will take approximately two months to complete.

Upon completion of field activities and upon receipt of final, validated analytical data, a data box figure(s) showing the data will be prepared describing the results of the completed work. The data will be combined with previous data and presented in the RFI Report.



BASE SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLES;  
 BARTLETTSVILLE, INDIANA 1994  
 BEDFORD EAST, INDIANA 1978  
 BEDFORD WEST, INDIANA 1993  
 OOLITIC, INDIANA 1987



#### LEGEND

--- FACILITY BOUNDARY



figure 1.1

### SITE PLAN RFI WORK PLAN ADDENDUM NO. 13 GM POWERTRAIN BEDFORD FACILITY Bedford, Indiana





TABLE 2.1

**GM POWERTRAIN - BEDFORD PLANT**  
**Proposed Groundwater Sampling Locations**

| <i>Location Name</i>                    | <i>Easting</i> | <i>Northing</i> | <i>Comment</i>                          |
|-----------------------------------------|----------------|-----------------|-----------------------------------------|
| <b>RFI Groundwater Monitoring Wells</b> |                |                 |                                         |
| MW-X012Y078                             | 3122365.71     | 1322450.13      |                                         |
| MW-X012Y100                             | 3122317.76     | 1322717.39      | New Location                            |
| MW-X033Y147D-1                          | 3122524.04     | 1323201.79      |                                         |
| MW-X033Y147D-2                          | 3122524.04     | 1323201.79      |                                         |
| MW-X033Y147D-3                          | 3122524.04     | 1323201.79      |                                         |
| MW-X033Y147D-4                          | 3122524.04     | 1323201.79      |                                         |
| MW-X033Y147S                            | 3122522.22     | 1323193.53      |                                         |
| MW-X043Y176                             | 3122527.00     | 1323446.86      | New Location                            |
| MW-X043Y186                             | 3122565.79     | 1323592.52      | New Location                            |
| MW-X043Y273                             | 3122540.59     | 1324490.24      |                                         |
| MW-X045Y258D-2                          | 3122852.97     | 1324270.20      |                                         |
| MW-X047Y236                             | 3122604.22     | 1324115.77      | New Location                            |
| MW-X060Y304                             | 3122785.83     | 1324719.23      |                                         |
| MW-X085Y070D-2                          | 3123177.92     | 1322420.87      |                                         |
| MW-X085Y070D-3                          | 3123177.92     | 1322420.87      |                                         |
| MW-X085Y070S-1                          | 3123168.09     | 1322421.17      |                                         |
| MW-X106Y102                             | 3123208.05     | 1322719.14      | No Sample - Eocine Injection Well       |
| MW-X120Y203                             | 3123093.64     | 1323657.64      | New Location                            |
| MW-X128Y255                             | 3123455.80     | 1324293.13      |                                         |
| MW-X143Y245D-1                          | 3123622.54     | 1324160.29      |                                         |
| MW-X143Y245D-2                          | 3123622.54     | 1324160.29      |                                         |
| MW-X143Y245S                            | 3123628.50     | 1324162.24      | No Sample - Rhodamine WT Injection Well |
| MW-X169Y058D-1                          | 3123845.65     | 1322268.63      |                                         |
| MW-X169Y058D-2                          | 3123845.65     | 1322268.63      |                                         |
| MW-X169Y058D-3                          | 3123845.65     | 1322268.63      |                                         |
| MW-X169Y058I                            | 3123835.05     | 1322286.27      |                                         |
| MW-X169Y058S-1                          | 3123840.38     | 1322277.88      |                                         |
| MW-X169Y058S-2                          | 3123840.38     | 1322277.88      |                                         |
| MW-X178Y367D-2                          | 3123967.33     | 1325355.76      |                                         |
| MW-X178Y367D-3                          | 3123967.33     | 1325355.76      |                                         |
| MW-X178Y367D-4                          | 3123967.33     | 1325355.76      |                                         |
| MW-X209Y078S                            | 3124289.33     | 1322489.32      |                                         |
| MW-X211Y131                             | 3124266.07     | 1323027.29      | Phloxine B Injection Well               |
| MW-X233Y071B                            | 3124519.77     | 1322426.30      |                                         |
| MW-X233Y087S                            | 3124540.76     | 1322586.37      | No Sample - Fluorescein Injection Well  |
| MW-X233Y095                             | 3124561.85     | 1322628.65      |                                         |
| MW-X233Y100                             | 3124565.46     | 1322698.67      |                                         |
| MW-X233Y105B                            | 3124570.73     | 1322753.04      |                                         |
| MW-X234Y157D-1                          | 3124543.77     | 1323326.58      |                                         |
| MW-X234Y157D-2                          | 3124543.77     | 1323326.58      |                                         |
| MW-X234Y157D-3                          | 3124543.77     | 1323326.58      |                                         |
| MW-X234Y157D-4                          | 3124543.77     | 1323326.58      |                                         |
| MW-X234Y157S                            | 3124550.65     | 1323333.87      |                                         |
| MW-X242Y060S                            | 3124622.69     | 1322303.28      |                                         |
| MW-X251Y189D-2                          | 3124697.80     | 1322592.16      |                                         |
| MW-X251Y189D-3                          | 3124697.80     | 1322592.16      |                                         |
| MW-X251Y189D-4                          | 3124697.80     | 1322592.16      |                                         |
| MW-X251Y189D-5                          | 3124697.80     | 1322592.16      |                                         |
| MW-X251Y189D-7                          | 3124697.80     | 1322592.16      |                                         |
| MW-X257Y073                             | 3124786.01     | 1322458.99      |                                         |
| MW-X261Y356D-2                          | 3124799.63     | 1325223.59      |                                         |
| MW-X261Y356D-3                          | 3124799.63     | 1325223.59      |                                         |
| MW-X269Y201D-1                          | 3124873.50     | 1323509.36      |                                         |
| MW-X269Y201D-2                          | 3124873.50     | 1323509.36      |                                         |
| MW-X269Y201D-3                          | 3124873.50     | 1323509.36      |                                         |
| MW-X297Y305D-1                          | 3125144.13     | 1324629.70      |                                         |
| MW-X297Y305D-2                          | 3125144.13     | 1324629.70      |                                         |
| MW-X344Y230                             | 3125686.35     | 1323960.98      |                                         |
| MW-X361Y175                             | 3125787.64     | 1323471.24      |                                         |

TABLE 2.1

**GM POWERTRAIN - BEDFORD PLANT**  
**Proposed Groundwater Sampling Locations**

| <i>Location Name</i>     | <i>Easting</i> | <i>Northing</i> | <i>Comment</i>                              |
|--------------------------|----------------|-----------------|---------------------------------------------|
| MW-X367Y239              | 3125862.12     | 1324140.46      |                                             |
| MW-X370Y178              | 3125905.92     | 1323481.24      |                                             |
| SU-X208Y096              | 3124187.73     | 1322605.98      | If oil is not present                       |
| TMW-X085Y070             | 3123174.67     | 1322413.98      |                                             |
| TMW-X128Y255A            | 3123470.29     | 1324295.01      |                                             |
| TMW-X128Y255B            | 3123471.83     | 1324279.26      |                                             |
| TMW-X193Y251             | 3124093.86     | 1324186.87      | No Sample - Fluorescein Injection Well      |
| CH-9A                    |                |                 | Corehole to be converted to Monitoring Well |
| CH-10A                   |                |                 | Corehole to be converted to Monitoring Well |
| <b>Residential Wells</b> |                |                 |                                             |
| 216 Rawlins Mill Road    | 3121815.56     | 1327327.38      |                                             |
| PARCEL 20 296 WELL       | 3125970.81     | 1326866.87      |                                             |
| PARCEL 388 WELL          | 3122232.67     | 1325041.87      |                                             |
| PARCEL 390/392 WELL      | 3122063.19     | 1325279.09      |                                             |
| PARCEL 413 WELL          | 3124849.82     | 1323006.59      |                                             |
| PARCEL 414 WELL          | 3125060.27     | 1323470.54      |                                             |