STATEMENT OF BASIS FOR
INTERNATIONAL STEEL GROUP, BURNS HARBOR, LLC
BURNS HARBOR, INDIANA

INTRODUCTION

This Statement of Basis (SB) for the proposed permit modification for the International Steel Group, LLC (ISG) facility, a wholly owned subsidiary of Mittal Steel, LLC, in Burns Harbor, Indiana, is being issued by the United States Environmental Protection Agency (U.S. EPA) to fulfill part of its public participation responsibilities under the Resource Conservation and Recovery Act (RCRA). The SB explains the proposed remedy at ISG. This corrective measures is proposed for addressing soil and groundwater at the facility. This SB also explains the reasons for selecting the remedy. In addition, the SB includes summaries of other remedies analyzed for this facility. The U.S. EPA will select a final remedy for the facility only after the public comment period has ended and the information submitted during this time has been reviewed and considered.

This document summarizes information that can be found in greater detail in the Phased Investigative Reports, Corrective Measures Proposal, Preliminary Site Assessment Reports and other documents contained in the administrative record for the ISG facility. U.S. EPA encourages the public to review these other documents in order to gain a more comprehensive understanding of the facility and RCRA activities that have been conducted there.

The U.S. EPA may modify the proposed remedy or select another remedy based on new information or public comments. Therefore, the public is encouraged to review and comment on all alternatives. The public can be involved in the remedy selection process by reviewing the documents contained in the administrative record. U.S. EPA will inform the public of the location and availability of the administrative record and the schedule for a public hearing, if necessary.

PROPOSED REMEDY

Contaminated soils and other wastes were removed from the facility during previous corrective measures activities performed by ISG. The U.S. EPA proposes the following remedy to address the remaining contaminated soils and groundwater at the ISG facility:

1. Impose institutional controls on selected areas of the North facility (Figure 1) to restrict land use and groundwater use for industrial purposes;

2. Impose institutional controls on the South facility to restrict land use for either industrial use or an environmental learning center/restoration area and groundwater use for industrial purposes;

3. Perform groundwater monitoring at a surface impoundment, referred to as Location IA-1 to facilitate a plume stability demonstration; and,

4. Perform semi-annual groundwater monitoring at a surface impoundment, referred to as Location IA-3 for up to five years or until contaminants are within acceptable risk based levels.

FACILITY BACKGROUND

The complete north and south facilities, including parcels that have since been sold for development, have been included in a series of environmental investigations that have spanned more than a decade. This section discusses the background of these environmental investigations.

Environmental Setting

The north and south facilities occupy almost five square miles of land along Lake Michigan in Burns Harbor, Indiana. The north facility consists of industrial land devoted almost entirely to ongoing manufacturing operations. The north facility is bounded to the north by Lake Michigan, to the south by U.S. 12, to the east by the Port of Indiana, and to the west by the Indiana Dunes National Lakeshore.

The south facility consists of property located south of U. S. Highway 12. This property originally consisted of about 850 acres of cleared farmland when it was acquired by Bethlehem Steel in the 1960s. Of the original acreage, about 420 acres were never used for manufacture of steel and have been sold and converted by the new owners into industrial developments. Another 190 acres, which also were not used, are scheduled for sale for redevelopment. As a result, the South Facility currently contains about 240 acres of land that were extensively studied as part of the Resource Conservation and Recovery Act (RCRA) Facility Investigation. This land is divided between a “lagoon” area and a portion of the site that is referred to as the “Little Calumet Restoration Area (LCRA).

Approximately 65 acres of the South Facility is comprised of two man-made lagoons, which convey up to 90 million gallons of water each day from ISG’s main wastewater treatment plant at Burns Harbor to the Little Calumet River. All water passing through these lagoons is monitored for quality at two locations as required by the Burns Harbor water discharge permit (NPDES Permit).

The LCRA is an “L” shaped portion of the South Facility that is about 160 acres in size. This area is bounded on the north by U.S. Route 12, the Port of Indiana and the steel-producing facilities of Burns Harbor. To the west is an industrial park. The eastern boundary is Burns Harbor's Outfall 001 discharge channel to the Little Calumet River. The southern portion of the

property borders the riparian corridor of the Little Calumet River/Burns Ditch, which is owned by the Indiana Dunes National Lakeshore.

Preliminary Site Assessment

As part of the integrated steel making process at ISG, coke (which is used as fuel in the blast furnace) is produced by the destructive distillation of coal. The production of coke, in turn, leads to the creation of millions of gallons per year of waste ammonia liquor. The ammonia liquor is disposed in two deep underground injection wells. The injection wells are authorized to operate under two permits, nos. IN-127-1W-003 and IN-127-1W-004, issued by USEPA. The injection wells dispose of the ammonia liquor almost a mile below ground in the geologic formation known as the lower Mt. Simon Sandstone.

The two permits for the injection wells are periodically renewed and amended by USEPA. As part of the most recent permit, USEPA added requirements to investigate areas -- called solid waste management units or "SWMUs" -- where industrial wastes have routinely been stored, managed, or disposed. The permits state that "corrective action" must be taken for any releases of hazardous constituents from these SWMUs, as may be necessary to protect human health and the environment. Following Bethlehem Steel's bankruptcy, the north and south facilities were acquired by ISG in 2003. ISG continued the corrective action work for the north and south facilities until 2005, when ISG, including Burns Harbor, merged into a new corporation, Mittal Steel, as part of a consolidation with Ispat International. For ease of reference, the term "Burns Harbor" is used to refer to both the north and south facilities.

In accordance with the two permits for the injection wells, ISG performed a site-wide Preliminary Site Assessment that examined the entire north and south facilities and identified 179 potential SWMUs. Of these, 67 SWMUs were determined to warrant further investigation. It was also determined that the remaining 112 SWMUs did not pose a significant potential for release and, as a result, no further investigation or action was warranted. Further descriptions of each of these SWMUs can be obtained from the administrative record.

RCRA Facility Investigation

The SWMUs identified for further investigation in the Preliminary Site Assessment were grouped into forty-two (42) Investigation Areas. The grouping of SWMUs into Investigation Areas was done in order to accommodate a thorough investigation at locations where SWMUs were in close proximity to each other and contained wastes with similar chemical characteristics. In addition to the 42 Investigation Areas, the blast furnace slag quench basins were subsequently identified as a 43rd Investigation Area.

The RFI was conducted in phases. The investigation included collection of about 800 aqueous (groundwater and surface water) samples, 500 solid (waste and soil) samples, and 75 air filter samples. Most of these samples were analyzed for a full suite of 64 constituents of potential

interest. The investigation produced more than 30,000 data points measuring chemical concentrations in environmental media. Wherever practical, the samples were collected from worst-case locations For example, samples of native soil were often collected immediately under waste materials; groundwater samples were collected from beneath stained areas or other areas most likely to have released chemical constituents; and air samples were collected immediately adjacent to or inside Investigation Area boundaries.
As specified in the Phase I work plan, the concentrations of constituents identified in environmental media in this sampling were compared to conservative, risk-based screening levels. These screening levels were specified in the work plan, and are based on the Indiana Department of Environmental Management's Resource Guide for the Indiana Voluntary Remediation Program (July 1996). As the Resource Guide states (pp. 40, 99), IDEM derives these levels "from standard equations used in the federal Superfund and Resource Conservation and Recovery Act (RCRA) corrective action programs." The Voluntary Remediation Program was approved by USEPA as "protective of human health and the environment" in a memorandum of understanding with IDEM dated December 4, 1995. IDEM policy is that investigations initiated using the VRP screening levels should continue to use those levels.

Additional sampling and related work were conducted in specific areas to follow up on the Phase 1 results. This work included Phase 2 sampling at 7 of the original 43 Investigation Areas. The results of that sampling were consistent with the Phase 1 data. Final Phase 2 reports were submitted to USEPA in January 1993.

Summary of RFI

The following provides, for each of the 43 areas evaluated as part of the RFI, a brief description of the Investigation Area, the sampling performed and the final determination based on the results of the sampling. Additional detail regarding the units, the sampling program and results can be obtained from the administrative record.

IA-1: Wastewater Pump Station No. 2 Surface Impoundment

The IA-1 surface impoundment is a former drying bed that was used to dry nonhazardous sludge and coke oven gas condensate in the early 1970s. The area covers approximately 13,000 square feet. In 1986, Burns Harbor excavated the material that remained in the drying bed, nearly reaching the water table, and disposed of this material off site. During the Phase 1 RFI, the soil at the base of the impoundment was sampled and analyzed. Results confirmed that the 1986 excavation had successfully removed the source material from this soil. However, groundwater sampling and analyses conducted during both the Phase 1 and Phase 2 RFI indicated that benzene and toluene are present in the groundwater immediately down-gradient (south and south-west) of the impoundment. Benzene and toluene are typical constituents of coke oven gas condensate and coke products in general. Concentrations of benzene in groundwater immediately down-gradient of the surface impoundment were found to exhibit a positive correlation with changes in groundwater elevation. Based on these results, it was concluded that the smear zone at IA-1 contains residual material that is causing localized concentrations of benzene in the groundwater.

Additional sampling was conducted at this area in September and December 2003. This sampling included the collection and analysis of 7 subsurface soil samples, 17 groundwater samples and groundwater elevation measurements.

Qualitative observations and field screening measurements confirmed the presence of coke condensate residues in the smear zone closest to the down-gradient side of the surface impoundment. Neither benzene nor toluene was detected in the up-gradient monitoring wells.

IA-2: Secondary Wastewater Treatment Plant Sludge Surface Impoundments, SWTP Sludge Drying Field and SWTP Sludge Piles.

This area has been used from July 1985 to the present to dry and store nonhazardous sludge from the Secondary Wastewater Treatment Plant (SWTP). The portion of the investigation area called the "SWTP Sludge Surface Impoundments" consists of four, rectangular drying beds that lie next to each other, each covering about 27,000 square feet. Tanker trucks carry sludge to these drying beds from the thickener at the SWTP. After the sludge has been allowed to dry in one of the beds for 10 to 18 weeks (depending on the rate of sludge production), the bed is emptied and the sludge carried by front-end loader to the "SWTP Sludge Drying Field," which covers about 2.5 acres. After a week to a month (depending on weather conditions), the sludge is removed from the drying field and stored on a long-term basis in the "SWTP Sludge Piles." These piles are located immediately north of the drying field.

A sampling program was conducted to identify any potential releases into the soil or groundwater at this IA. Based on the sample results, it was determined that the soil and groundwater at this area met the screening levels and no further investigation or action was warranted.

IA-3: Rectangular and Circular Tar Impoundments

In the early 1970's, the tar decanter/tar removal system at the Coke Oven Coal Chemical Plant was purged of all materials over a three-week period. The contents of this system were disposed in a constructed fill area that was designed and used as a single disposal unit for wastes and debris. This area included two basins or impoundments located about 150 feet apart. The impoundments have been unused since that time. The rectangular impoundment covered approximately 28,000 square feet and contained tar to an average depth of 4 feet. The circular impoundment was smaller and covered approximately 2,000 square feet with an average depth of 8 feet. The combined volume of tar contained in the two impoundments totaled approximately 4,800 cubic yards. In 1998 during Phase 1 of the RFI, soil samples were collected immediately beneath the tar in the rectangular impoundment. All of the constituents detected in the soil samples were below their respective screening levels.

The Phase 1 RFI also included the installation of four pairs of monitoring wells at locations surrounding the impoundments. In addition, two wells were installed directly east and west of the impoundments. Analytical results from the groundwater samples identified several volatile

organic compounds (VOCs) and semivolatile organic compounds (SVOCs) at concentrations above the conservative screening levels.

As a voluntary corrective measure, ISG performed remedial work at the two impoundments and surrounding fill area during the summer of 2002. This remedial work included stabilization of the tar, to improve its load-bearing characteristics as well as reduce its leachability, and the construction of a multi-layered cap to minimize the infiltration of rainwater and snow melt.

In Phase 2, three additional observation wells were installed and quarterly groundwater samples were collected from September 2001 to June 2004. The data from that sampling indicated a stable and shrinking benzene plume consistent with the effectiveness of the remedial measures implemented at the IA during the summer of 2002.

IA-4: Possible Refuse Area Northwest of Tar Impoundments

This area was believed to have been a possible refuse area for construction waste, demolition debris and similar materials generated during the initial phases of construction of the Burns Harbor facility. Ground penetrating radar (GPR) and magnetometry geophysical techniques were used in the most likely disposal locations based on old aerial photographs and interviews with long-time plant employees. The work plan GPR target depth was 20 feet below ground surface (bgs) because the groundwater depth was anticipated to be 20 feet bgs. The geophysical survey was able to reach 40 feet bgs. No anomalies were detected by these geophysical techniques. Because no evidence of a refuse area was found, it was determined that this IA does not pose a significant potential for release and no further investigation or action was warranted.

IA-5 & IA-7: Cokemaking/By-Products Recovery Area (IA-5) and No. 1 Coke Oven Battery Quench Station/Basin (IA-7)

This IA consists of ten sub-areas where by-products from coke making have been managed and include the Waste Ammonia Liquor (WAL) Sluice Pits, two Spent Wash Oil Collection Containers, the Coal Tar Truck Loading Area, the Coal Tar Decanter Sludge Area, the Area Near the Waste Ammonia Liquor Heat Exchangers, the Area Around Tar Decanters, the Area Around Primary Coolers, the Former Location of a Coke Oven Gas (COG) Condensate Collection Container, and the No. 1 Coke Oven Battery Quench Station/Basin. These areas were combined for purposes of the RFI based on (1) the similarity of the coke making materials managed in each location and (2) the density of the buildings, equipment, and pipes in this area, which makes separate investigation of individual sub-areas highly impractical.

A sampling program was conducted to identify any constituents present in waste materials, soil and groundwater media at this combined IA at concentrations above screening levels. Analytical results of the soil samples from Phase I of the RFI indicated that benzo(a)pyrene in three samples was slightly above the conservative soil screening level. Average soil concentrations and the upper confidence limit for this constituent were well below the screening level. In addition, benzene was detected in only one of the groundwater samples above the conservative screening level.

As a result of the initial sample results, Mittal agreed to implement a Phase II sampling program and obtained additional soil and groundwater samples. Based on the sample results obtained, it was determined that the soil and groundwater at this area met the screening levels and no further investigation or action was warranted.

IA-6: Coal Field Solid Waste Staging Area and the Coal Field Secondary Wastewater Treatment Plant (SWTP) Filter Cake Landfill

The Coal Field Solid Waste Staging Area is an area of approximately 64,000 square feet that was formerly used as a staging/storage area for non-hazardous solid wastes. All waste materials were removed from the staging area in 1991. This staging area is surrounded by the Coal Field Secondary Wastewater Treatment Plant Filter Cake Landfill, which contains approximately 44,000 tons of SWTP Filter Cake that was disposed during 1973 and 1974 as part of pilot tests for the de-oiling of this material.

A sampling program was implemented to identify any constituents present in environmental media at this IA at concentrations above screening levels. Sampling activities included the collection of 5 samples of SWTP filter cake, 8 samples of surface soil, 6 samples of groundwater, and 32 air samples. Based on the sample results obtained, it was determined that the soil, groundwater and air at this area met the screening levels and no further investigation or action was warranted.

IA-8: Blast Furnace Closed Water Pump Station (BFCWPS) Surface Impoundment

This area is a drying bed for sludge that accumulates in the wet well of the BFCWPS. It measures about 16,500 square feet and has been used periodically since the early 1970's. Most of the sludge was excavated from this area in November 1994. A small amount of sludge remains present in surface irregularities at the base of the drying bed, which was constructed over a slag base. Because the sludge consists of residual products from the blast furnace, which operates at extremely high temperatures, volatile organic compounds (VOCs) are not reasonably expected to be present in this area.

A sampling program was implemented to identify any constituents present in waste, soil, or groundwater at this IA at concentrations above screening levels. Based on the sample results obtained, it was determined that the soil and groundwater at this area met the screening levels and no further investigation or action was warranted

IA-9: Blast Furnace (BF) Filter Cake Storage Pile

This area currently stores about 260,000 tons of blast furnace filter cake, which is a recyclable by-product of the iron making process. The area covers about 7.5 acres and has been in use since about 1986. Based on past testing of the filter cake and the carefully controlled conditions for iron making, the filter cake is homogenous over time. Because this material is produced in the blast furnace, which operates at extremely high temperatures, VOCs are not reasonably expected to be present in this area.

A sampling program was implemented to evaluate the filter cake in the storage pile for potential impact to surface soil, surface water, air, and groundwater. Based on the sample results, it was determined that the soil, groundwater, surface water and air at this area met the screening levels and no further investigation or action was warranted.

IA-10: Blast Furnace/Basic Oxygen Furnace Sludge and Dust Storage Piles Mixing Area

Between the years 1988 and 1991, this area was used to store and mix materials prior to recycling at the sinter plant. All recycling materials were subsequently removed. Materials stored and mixed in this area included: blast furnace filter cake, blast furnace flue dust, basic oxygen furnace baghouse dust and basic oxygen furnace classifier sands. The area covers approximately 4.7 acres. Because all of these recyclable materials are produced at extremely high temperatures, VOCs are not reasonably expected to be present.

A sampling program was implemented to identify any constituents present in soil or groundwater at this IA at concentrations above screening levels. Based on the sample results, it was determined that the soil and groundwater at this area met the screening levels and no further investigation or action was warranted.

IA-11, 12, 13, 14, 15, 16, 17, 21, 27, 28, 29, 30, 31, & 32: Condensate Tanks for Coke Oven Gas

Coke oven gas (COG) is a coke making by-product that is used as a fuel throughout Burns Harbor. The gas is transported from the coke ovens through an overhead pipeline. As the gas cools in the pipeline, a liquid condensate is formed and must be removed in order to protect the integrity of the pipeline. The condensate that is removed from the pipeline is collected for recycling in a series of underground steel or concrete containers that follow the path of the pipeline. Small scale spills or leaks of the condensate have occasionally occurred in the area of the containers as a result of mechanical failures of the removal equipment.

As part of the RFI, Burns Harbor chose to implement a voluntary corrective measure. This involved the installation of a new collection system consisting of double-walled aboveground tanks and, where feasible, removal of the existing underground containers. After the underground containers were removed, surrounding soils were excavated and appropriately disposed off-site. In a few cases, the proximity of utility lines or other structures made removal of the containers unsafe. In these cases, the containers were emptied, cleaned, and filled in-place with concrete.

A confirmatory sampling program was implemented to identify any constituents remaining in these areas after implementation of the corrective measures. The confirmatory sampling results indicated that the corrective measure was effective at all but two of the locations (IA-15 and IA-30). Follow-up sampling of groundwater at these locations confirmed that the corrective measure was effective at these locations and that groundwater contaminant concentrations were decreasing as a result.

Based on the sample results, it was determined that the implemented corrective measures were effective, the soil and groundwater at these areas met the screening levels and no further investigation or action was warranted.

IA-18: No. 1 Caster Scale Pit Oil Skimmings Hopper

This area currently occupies approximately 480 square feet of concrete, asphalt and soil. A movable steel hopper is located on the concrete and asphalt and receives oil that is skimmed from the surface of the water in the scale pit. The hopper has been in use for about 24 years.

A sampling program was implemented to determine if the above operational area had caused a release to the environment. Based on the sample results, it was determined that the soil and groundwater at this area met the screening levels and no further investigation or action was warranted.

IA-19: No. 2 Caster Scale Pit Oil Skimmings Hopper and Mill Scale Management Area

This area consists of approximately 1,000 square feet of soil located next to a steel hopper formerly used to store waste oil that was skimmed from the water within the caster scale pit. The surface of the soil shows stains from small spills of the oil. The hopper was in use between 1986 and 1990.

A sampling program was implemented to determine if the above operational area had caused a release to the environment. The original groundwater result showed a positive detection for benzene that was below the screening level. In order to verify that there was no on-going release from this unit, ISG agreed to perform additional sampling of groundwater. This additional sampling showed no detectable levels of benzene.

Based on the sample results, it was determined that the soil and groundwater at this area met the screening levels and no further investigation or action was warranted.

IA-20: Fuel Oil Tank Farms Diked Area and Waste Oil Hopper at No. 1 Fuel Oil Station and Waste Oil Hopper at No. 2 Fuel Oil Station.

This area consists of six 5.3 million gallon storage tanks for fuel oil, two steel storage hoppers and the surrounding soil. The area covers approximately 450,000 square feet. The area has been used for fuel oil storage since the late 1960s. Some of the soil shows small fuel oil stains.

A sampling program was implemented to identify any constituents in soil or groundwater at this IA at concentrations above screening levels. The results of the initial sampling for groundwater were all below the screening levels. Two soil samples yielded results for benzo(a)pyrene that slightly exceeded the screening level for this constituent. The unit average concentration and upper confidence level for this constituent were well below the screening level. Nonetheless, ISG performed additional sampling at this IA in order to verify there was no on-going release. Some

additional polyaromatic hydrocarbons, which are relatively immobile and indicative of fuels, asphalt, and combustion processes, were found during this additional sampling. The presence of these constituents within an industrial facility is not unexpected and their concentration and immobility is such that their presence in low concentrations in this context is not significant for industrial purposes.

Based on the sample results and the anticipated future industrial land use, it was determined that the soil and groundwater at this area met the screening levels and no further investigation or action was warranted.

IA-22: Slabbing Mill Slabber Scale Pit Oil Skimmings Hopper and Mill Scale Management

This area consists of approximately 40,000 square feet of soil located adjacent to the Slabbing Mill Scale Pits. Set atop the steel plates covering the scale pits is a steel hopper for waste oil. The IA also contains an additional area covering approximately 6,000 square feet that is used for storage of mill scale prior to recycling. The surface soil next to the steel hopper shows stains from past spills of oil. The hopper has been in use since 1986 and the area has been used to store mill scale since 1969.

A sampling program was implemented to identify any constituents present in waste, soil, or groundwater at this IA at concentrations above screening levels. Based on the sample results, it was determined that the soil and groundwater at this area met the screening levels and no further investigation or action was warranted.

IA-23: Hot Strip Mill Main Scale Pit Oil Skimmings Tanks and Mill Scale Management Area and 501 Oilhouse Bulk Loading Area

This area consists of approximately 32,000 square feet of soil adjoining a fill pipe for virgin lubricating oil and two storage tanks for waste oil that is skimmed off the water in the scale pit. Parts of this area are also used to store mill scale prior to recycling. The area has been in use since 1966.

A sampling program was implemented to identify any constituents present in waste, soil, or groundwater at this IA at concentrations above screening levels. Based on the sample results, it was determined that the soil and groundwater at this area met the screening levels and no further investigation or action was warranted.

IA-24: 160-Inch Plate Mill Main Scale Pit Oil Skimmings Hopper

Oils and greases collected by the belt skimmers in the scale pit are discharged to the oil skimmings hopper for temporary storage and subsequent recycling. The oil skimmings hopper is constructed of steel with an approximate capacity of 1,000 gallons and has a cover. The hopper is located on a concrete containment pad surrounded by a curb. The containment pad is fitted with a drain which discharges back to the scale pit. When the oil skimmings hopper is near capacity, the contents are pumped into a tanker truck and then transported to the on-site oil recycling facility.

ISG entered into an administrative Consent Agreement/Consent Order (CACO) with USEPA specifying that a Supplemental Environmental Project (SEP) be performed at the 160-Inch Plate Mill Main Scale Pit Oil Skimmings Hopper. Activities associated with this SEP included the excavation of soil from the area, collection and analysis of confirmatory soil samples, report preparation, and construction of a new containment structure.

Initially, the containment structure footprint was established at the site. All visually stained soil within the area and the footprint of the containment structure was excavated to a minimum depth of approximately three feet using either a front end loader or backhoe.

Confirmatory sampling was performed from the base of the excavation and along the north, south, and east walls. Based on the results of the confirmatory sampling as well as the completion of an improved secondary containment device, it was determined that the soil and groundwater at this area met the screening levels and no further investigation or action was warranted.

IA-25: 110-Inch Plate Mill Scale Pit Oil Skimmings Hopper

Oils and greases collected by the belt skimmers in the scale pit are discharged to the oil skimming hopper for temporary storage and subsequent recycling. The oil skimming hopper is constructed of steel with an approximate capacity of 2,500 gallons and has a cover. The hopper is located on a concrete containment pad surrounded by a curb. The containment pad is fitted with a drain which discharges back to the scale pit. When the oil skimming hopper is near capacity, the container and its contents are transported to the on-site oil recycling facility. Following oil transfer activity at the oil recycling facility, the empty hopper is returned to the 110-Inch Plate Mill Scale Pit and placed back in service.

ISG entered into a CACO with USEPA specifying that a SEP be performed at the 110-Inch Plate Mill Scale Pit Oil Skimming Hopper. Activities associated with this SEP included the excavation of soil from the area, collection and analysis of confirmatory soil samples, report preparation, and construction of a new containment structure.

Initially, the containment structure footprint was established at the site. All visually stained soil within the area and the footprint of the containment structure was excavated to a minimum depth of approximately three feet using either a front end loader or backhoe.

Confirmatory sampling was performed from the base of the excavation along the north, south, east, and west walls. Based on the results of the confirmatory sampling as well as the completion of an improved secondary containment device, it was determined that the soil and groundwater at the area met the screening levels and no further investigation or action was warranted.

IA-26: 160-Inch Plate Mill Mechanical Shop Flow Bins and Used Oil Containers

This is an area of about 280 square feet containing bins, containers, and piping for oil and lubricating fluid. The area has been in use since 1964 and has been paved with asphalt since about 1990. Occasional small oil spills and clean-ups have occurred in this area in the past.

A sampling program was implemented to identify any constituents present in the soil or groundwater at this IA at concentrations above screening levels. Based on the sample results, it was determined that the soil and groundwater at that area met the screening levels and no further investigation or action was warranted.

IA-33: Hydrochloric Acid Storage Tank Area for Pickling Lines

This area consists of approximately 6,300 square feet of soil where a spill of 7,500 gallons of spent pickle liquor occurred in 1989 and another spill of 50 gallons occurred in 1991. Each of the spills was cleaned up at the time they occurred through neutralization of the acidic liquor with soda ash and lime, excavation of contaminated soil, and placement of clean limestone and slag on the ground surface. The area was subsequently paved with asphalt to prevent future spillage from impacting the ground.

A sampling program was implemented to identify any constituents that might remain in soil or groundwater at this IA at concentrations above screening levels. Based on the sample results, it was determined that the soil and groundwater at that area met the screening levels and no further investigation or action was warranted.

IA-34: Cold Strip Mill Spent Pickle Liquor Truck Loading Station

This area consists of approximately 25,500 square feet of slag-covered soil adjacent to a concrete pad where tanker trucks load Spent Pickle Liquor for off-site reuse. Tanker trucks use this area only about five days per year. This intermittent use has occurred since the early 1970s. Occasional cleanups of past spills have been conducted in this area, and it is currently covered with slag fill.

A sampling program was implemented to identify any constituents present in soil or groundwater at the IA at concentrations above screening levels. Based on the sample results, it was determined that the soil and groundwater at that area met the screening levels and no further investigation or action was warranted.

IA-35: 602 Oilhouse Bulk Loading Area

Virgin lubricants are delivered to the 602 Oilhouse by tanker trucks once or twice per week. Historically, tanker trucks parked on a slag covered area adjacent to the fill pipes, connected the discharge hose to the fill pipe, opened the valve and pumped oil into the product tanks. When complete, the driver closed the valve on the fill pipe, disconnected the discharge hose and left the area. Delivery of the virgin oil from the storage tanks to the designated operating units is controlled automatically based on demand. Lubricants stored in drums are distributed to the

various operating areas on an as needed basis. Occasional small oil spills and clean-ups have occurred in this area in the past.

ISG entered into a CACO with USEPA specifying that a SEP be performed at the 602 Oilhouse Bulk Loading Area. Activities associated with this SEP included the excavation of soil from the area, collection and analysis of confirmatory soil samples, report preparation, and construction of a new containment structure.

Initially, the containment structure footprint was established at the site. All visually stained soil within the area and the footprint of the containment structure was excavated to a minimum depth of approximately three feet using either a front end loader or backhoe.

Confirmatory sampling was performed from the base of the excavation and the north, south, and east walls. Based on the results of the confirmatory samples as well as the completion of an improved secondary containment device, it was determined that the soil and groundwater at that area met the screening levels and no further investigation or action was warranted.

IA-36: Cosmolubric HF-130 Bulk Loading Area

The Cosmolubric HF-130 Bulk Loading Area consists of an outdoor fill pipe for the delivery of virgin hydraulic fluid to three indoor storage tanks and a slag-covered parking lot used to park tanker trucks when the product is being delivered. Cosmolubric hydraulic fluid is delivered at a frequency of four to six trucks per year. Historically, product delivery occurred when the driver parked the truck on the slag lot near the fill pipe and connected a hose to the fill pipe. The driver then opened a valve on the fill pipe and pumped product to the storage tanks. When completed, the valve was closed and the hose disconnected from the truck and the driver departed the area. Product delivery occurred only during daylight hours. Occasional small oil spills and clean-ups have occurred in this area in the past.

ISG entered into a CACO with USEPA specifying that a SEP be performed at the Cosmolubric Bulk Loading Area. Activities associated with this SEP included the excavation of soil from the area, collection and analysis of confirmatory soil samples, report preparation, and construction of a new containment structure.

Initially, the containment structure footprint was established at the site. All visually stained soil within the area and the footprint of the containment structure was excavated to a minimum depth of approximately three feet using either a front end loader or backhoe.

Confirmatory sampling was performed from the base of the excavation and the north, south, and west walls. Based on the results of the confirmatory samples as well as the completion of an improved secondary containment device, it was determined that the soil and groundwater at that area met the screening levels and no further investigation or action was warranted.

IA-37: 601 Oilhouse Bulk Loading Area

This is an area of about 500 square feet adjacent to an unloading area for virgin lubricants from tanker trucks. The area has been in use since 1965. Occasional cleanups of small oil spills have occurred in this area in the past.

This area was completely paved with asphalt in 1996, which effectively prevented worker exposure to soil. An investigation was performed to determine whether past spills in this area might have a residual effect on groundwater. Based on the sample results, it was determined that the groundwater at that area met the screening levels and no further investigation or action was warranted.

IA-38: Riparian Fill Area

IA 38 consists of 240 acres of man-made, industrial land constructed from 1962 to 1983 pursuant to permits from the Indiana Department of Conservation and the U.S. Army Corps of Engineers. The area consists of five sub-areas: Basic Oxygen Furnace Sludge Processing Area, Basic Oxygen Furnace Sludge Storage Piles, Secondary Wastewater Treatment Plant Sludge Processing/Disposal Area, Mill Scale Piles, and Construction Waste Landfill.

A sampling program was implemented to identify any constituents present in waste, groundwater, surface water, or air at this IA at concentrations above screening levels. Based on the sample results, it was determined that the groundwater at that area met the screening levels and no further investigation or action was warranted.

IA-39: North Lagoon, South Lagoon and Old Lagoon

This area consists of two man-made lagoons that receive millions of gallons of clean, treated effluent each day from the Secondary Wastewater Treatment Plant (SWTP). The effluent from the lagoons is routinely monitored at an internal National Pollutant Discharge Elimination System (NPDES) monitoring location (designated Monitoring Station 011) and is conveyed through (and also routinely monitored at) NPDES Outfall 001 prior to discharge into the Little Calumet River. The lagoons allow ISG to capture and clean-up occasional operational upsets, such as small oil spills, before they reach public waters.

The two current lagoons were constructed in about 1970 by dividing a single, former lagoon (the "Old Lagoon") roughly in two. This separation into two lagoons allows ISG to capture any operational upsets in one lagoon cell, while continuing normal operations through the other.

A sampling program was implemented to determine whether the lagoons have caused a release of constituents to groundwater. Groundwater flows radially away from the lagoons due to the mounding effect of the lagoons themselves. In order to evaluate groundwater quality, a network of 5 permanent monitoring wells – one on each side of the lagoons and one in between them- was installed. Based on the sample results, it was determined that the groundwater at that area met the screening levels and no further investigation or action was warranted.

IA-40: Secondary Wastewater Treatment Plant (SWTP) Filter Cake Landfill North, SWTP Filter Cake Landfill South and SWTP Sludge Piles

The North Landfill consists of approximately 58,000 tons of SWTP filter cake disposed in a 17-acre area from November 1980 to July 1982 that is currently overgrown with trees and other vegetation. The South Landfill covers approximately 12 acres but contains only about 50 tons of filter cake in interconnected mounds about four to five feet tall. The Sludge Piles contain about 140 tons of filter cake in two-foot mounds on either side of Samuelson Road.

A sampling program was implemented to determine if the SWTP Filter Cake had caused a release of constituents to the environment above screening levels. Based on the sample results, it was determined that the soil and groundwater at this area met the screening levels and no further investigation or action was warranted.

IA-41: No. 6 Fuel Oil Tank Near Blast Furnace "C"

This is an area of about 1,300 square feet that previously contained an above ground storage tank for No. 6 fuel oil. The tank was in use from about 1970 to 1981 and was potentially the source of drips and spills. The tank was removed in July 1994 and soils were excavated as far as could be done without undermining the foundation of an adjacent building and disposed off-site. Confirmatory soil sampling was performed in accordance with a voluntary action plan that was submitted to the USEPA on October 26, 1994.

The remaining soil was covered first with clean sand and then with a concrete base that was used as the floor of a new pump house, which effectively prevented any potential worker exposure to the soil. A sampling program was implemented to determine whether past spills in this area might have a residual effect on groundwater. Based on the sample results, it was determined that the native soil and groundwater at that area met the screening levels and no further investigation or action was warranted.

IA-42: SWTP Filter Cake Landfill South of Lagoons

This area consists of approximately 500,000 tons of Secondary Wastewater Treatment Plant (SWTP) Filter Cake disposed in mounds across about 50 acres of land south of the lagoons (IA 39). Most of this filter cake was disposed between 1967 and 1980. In addition, about 40,000 tons of filter cake was moved to this area in 1987 from the South Landfill (IA 40). About 13,000 tons of dead vegetation and other sediment were also moved to this area from the influent channel to the lagoons.

A sampling program was implemented to identify any constituents present in waste, soil or groundwater at this IA at concentrations above screening levels. Based on the sample results, it was determined that the soil and groundwater at IA-42 met the risk-based screening levels for human health but exhibited levels of several metals that raised certain potential ecological concerns.

IA-43: Blast Furnace Slag Quench Basins

This area consists of two constructed basins used to cool molten slag from the blast furnaces. Each basin is approximately 230 feet long and 115 feet wide. The "C" basin consists of a compacted slag base covered by a waterproof geotextile mat, a polyethylene sheet, and a 30" concrete base with concrete side walls. The "D" basin consists of a layer of Volclay bentonite, covered by a sloped, 2-foot layer of sand, and covered by several feet of slag. The "C" and "D" quench basins have been in use since 1972 and 1969, respectively, and have periodically been rebuilt during major relines of the furnaces.

A sampling program was implemented to identify any constituents present in the groundwater at this IA at concentrations above screening levels. This was accomplished through the installation of four permanent observation wells. Based on the sample results, it was determined that the groundwater at that area met the screening levels and no further investigation or action was warranted.

SUMMARY OF FACILITY RISKS

Human Health Risk Characterization

The potential for adverse human health effects posed by potential releases at the ISG facility were assessed using data from the RFI and supplemental investigations performed over approximately 15 years of study and remediations at the site. Data collected over the study period were evaluated by comparing concentrations of constituents identified in environmental media to risk-based screening levels derived from the Indiana Department of Environmental Management's Resource Guide.

Based on a comparison of sample data from each Investigative Area (IA) and risk-based screening levels, it was found that constituents detected in different media (e.g., soil, groundwater, sediment, surface water and air), were below appropriate screening levels at all IA,s except for IA-1 (Wastewater Pump Station No. 2 Surface Impoundment) and IA-3 (Rectangular and Circular Tar Impoundments). At those two areas, groundwater protection levels were exceeded.

Benzene and toluene were the two constituents present in groundwater at IA-1. Both are typical constituents found in coke oven gas condensate, which was placed in the impoundment in the early 1970's. The highest groundwater concentrations were found at the base of the former surface impoundment and immediately down-gradient. A rapid decline of both constituents occurred within 200 feet down-gradient of the impoundment.

With regards to potential exposure routes and receptors, groundwater within the impacted area of IA-1 is not used for any purposes and, based on groundwater data from IA-1, both benzene and toluene concentrations have either been non detectable within 200 feet or at a level of benzene that has been reduced by more than 99 percent from the source area. Consequently, there are presently no exposure routes of concern or receptors exposed to the contaminants in groundwater originating from IA-1.

At IA-3, groundwater data collected during the RFI showed several organic constituents were above screening levels. As a corrective measure, remedial work was performed at both impoundments to stabilize its contents, reduce its leachability, and construct a multi-layered cap to minimize infiltration of water into the impoundment. Subsequent groundwater data from IA-3 has shown a reduction in constituent levels and a shrinking plume.

With regards to potential exposure routes and receptors, groundwater within and down-gradient of IA-3 is not used for any purposes at the site. Consequently, there are presently no exposure routes of concern or receptors exposed to the contaminants in the groundwater originating from IA-3.

Ecological Risk Characterization

Several ecological studies were performed as part of the RFI to identify protected species and to determine if any significant adverse effects have occurred at the facility as a result of waste management activities. From the studies, several conclusions were formed:

1. No protected species or significant habitat for protected species were identified under Indiana Department of Natural Resources criteria.
2. No significant ecological receptors are present at the north facility.
3. The Screening Ecological Risk Assessment performed at the south facility provided a good overview of the existing ecological community/habitats, including recent human alterations, for the project site and adjoining landscape. The study showed that significant impacts are not occurring to bird populations based on the bio-diversity results. The study did indicate the sludge mound located within IA-42 was an area with elevated levels of lead and cadmium that could have potential ecological concerns on resident populations of mammals and birds.

SCOPE OF CORRECTIVE MEASURES

Based on the results of the RFI and supplemental investigations at the ISG facility, the north and south facilities meet the risk-based screening levels for industrial criteria. In addition, three areas were identified as requiring further consideration. The three areas were IA-1, IA-3 and the sludge mounds at IA-42. At IA-1 and IA-3, the media of concern is groundwater. At IA-42, the media of concern is the sludge that constitutes the mounds. A corrective measures proposal was submitted by ISG to address the land use conditions and other control measures to maintain an acceptable level of protection to human health and the environment at the ISG facility.

<u>Summary of Controls</u>

The following controls are proposed to be implemented by ISG. Details of each are provided in the following sections.

North Facility

- Semi-annual inspection of the cap at IA-3

- Future groundwater monitoring at IA-3
- Future groundwater monitoring at IA-1
- Impose an institutional control in the form of a deed restriction to prohibit the use of groundwater as drinking water and limit the use of the land to industrial use.

South Facility

- Impose an institutional control in the form of a deed restriction on the lagoon area permitting only industrial land use only at the north lagoon, south lagoon and old lagoon (IA39).
- Impose an institutional control in the form of a deed restriction on the LCRA area (covered by IA-40 and IA-42) protecting against disturbance of the waste piles and permitting only industrial use or appropriate educational or recreational use.

There are portions of the south facility located south of the Little Calumet River that have either been divested or are the subject of current divestiture plans. These properties have never been subject to industrial activity and will not require any corrective action or deed restriction. Figure 2 identifies which portions of the south facility will be subject to the above requirements.

Presently, ISG is exploring the possibility of donating a portion of the south facility known as the "Little Calumet Restoration Area" (LCRA) to a third party owner for educational and recreational uses. The LCRA consists of approximately 160 acres that include IA 40 and IA 42. Through its Community Advisory Committee (CAC), ISG has sought public input on ways to protect the heron rookery that exists on the LCRA and to enhance the overall ecological value of the LCRA.

Because the filter cake waste piles in the LCRA area and elsewhere in IA-40 and IA-42 do not present a health threat as long as they are not disturbed, corrective action in these areas is considered "complete with controls." Appropriate fencing and no trespassing signs must also be put in place for areas where access to the piles must be physically restricted. Any transfer of the property would have to be structured to ensure that the controls preventing unacceptable disturbance of the waste piles remain in place and effective. Because ISG has successfully completed corrective action with controls at the LCRA, if ISG donates the LCRA for the public purpose described above and transfers primary responsibility for the property and the maintenance of the controls to a third party, U.S. EPA would not expect to assert further claims for RCRA corrective action at the LCRA. U.S. EPA would, however, reserve the right to assert such claims if it determines, based on information previously unknown to U.S. EPA (together with any other relevant information) that a previously unknown condition in existence prior to the transfer of the LCRA may present an unacceptable risk to human health or the environment even under the land use restrictions described above.

To the extent educational uses of the LCRA might include limited excavation or digging of the waste piles at the LCRA as needed for sampling, investigation or other educational

purposes, those activities would have to be performed in compliance with a health and safety plan approved by U.S. EPA and/or IDEM to minimize exposure to such waste.

Similarly, none of the waste piles may be dismantled, de-constructed or relocated without prior written approval from U.S. EPA and IDEM.

The deed restrictions on both the north and south facilities will incorporate procedures for removing the restrictions in some or all of these areas pursuant to a demonstration that environmental standards for unrestricted use are achieved. The restrictions shall be established in a manner that allows them to be enforceable by either U.S. EPA or IDEM (or their successors).

SUMMARY OF ALTERNATIVES AT IA-1 AND IA-3

IA-1 - Wastewater Pump Station (WWPS) No. 2 Surface Impoundment

The potential corrective measures alternatives considered for this area include the following:

Alternative 1: No Action

Alternative 2: Deed restrictions: impose restrictions to prohibit the use of groundwater for drinking water and limit use of the land to industrial purposes.

Alternative 3: Deed restrictions plus demonstration of plume stability (contaminant plume is stable or decreasing in concentration): In addition to the deed restrictions, quarterly sampling for benzene would be conducted for three years at a messenger well and two or more downgradient wells to confirm that the contaminant plume is stable or decreasing in concentration. Toluene will also be sampled for during the first quarter and, if the results from the messenger wells are below the industrial screening level (20 mg/L), then no further sampling for toluene will occur. If toluene is present above the screening level in any one of the downgradient samples, then it will be included in the plume stability demonstration. After three years of sampling, plume stability will be assessed using the Mann-Kendall trend test as described in Appendix 3 of IDEM's RISC Technical Resource Document (RISC Appendix). As specified in the RISC Appendix, if $S>0$ (that is, if increasing data sequences exceed decreasing data sequences) and $P<0.10$ (based on the probability table in the RISC Appendix), then "concentrations are considered to be increasing" (RISC Appendix, page A.3-7). If this increasing trend is shown, semi-annual sampling will continue until the downgradient wells meet industrial RISC criteria for benzene (0.052 mg/l) over two sampling periods. "Otherwise, the well concentrations are considered stable" under the RISC Appendix (page A.3-7) and no further action will be taken at this IA. Corrective

measures will be initiated if the contaminant plume does not achieve stability or decrease in concentration.

Alternative 4: Further source removal: Residual source material remaining in the smear zone approximately 19 feet below surface would be removed to the extent practicable through excavation of soil along the perimeter of the surface impoundment down to and including the smear zone.

General standards and decision factors used to evaluate these alternatives can be summarized as follows:

Overall protection of human health and the environment. This criterion is used to evaluate how each alternative will protect human health and the environment and how each hazardous substance source will be eliminated, reduced, or controlled.

Attainment of media cleanup standards. This criterion is used to evaluate the ability of each alternative to meet cleanup standards for groundwater.

Controlling the sources of releases. This criterion is used to evaluate how each alternative will eliminate, reduce, or control the sources of releases.

Compliance with waste management standards. This criterion is used to evaluate how each alternative will comply with waste management standards.

Reduction of toxicity, mobility, or volume of contaminants through treatment. This criterion is used to evaluate the anticipated performance of each alternative's treatment technologies in reducing the toxicity, mobility, or volume of hazardous substances.

Long-term reliability and effectiveness. This criterion is used to evaluate the potential effectiveness of each alternative in protecting human health and the environment after the corrective action is complete. Factors considered include the magnitude of residual risks and the adequacy and reliability of release controls.

Short-term effectiveness. This criterion is used to evaluate the potential effectiveness of each alternative in protecting human health and the environment during the corrective action construction and implementation period. Factors considered include protection of the community during the corrective actions, protection of workers during corrective actions, environmental impacts of corrective actions, and the time required to complete corrective action.

Implementability. This criterion is used to evaluate the technical and administrative feasibility of each corrective action alternative and the availability of required resources.

Cost. This criterion is used to evaluate the capital and operation and maintenance (O & M) costs of each corrective action alternative.

The proposed remedy and other alternatives were evaluated and compared in terms of each of these standards and factors. Evaluation results are presented below along with an evaluation summary.

Overall protection of human health and the environment. By incorporating deed restrictions, alternatives 2 and 3 would provide a formal, legally enforceable mechanism for preventing exposure to groundwater. Alternative 1 may provide a similar level of protection for practical purposes, but this mechanism has no legal enforceability and, so, this alternative is not considered further. To the extent that Alternative 4 incorporates excavation of residual material to depths of almost twenty feet, it would provide greater assurance of long-term protection because it would permanently remove the contamination. The excavation process itself would present short-term risks to human health (from worker exposure and from transporting material from the site.

Attainment of media cleanup standards. Alternative 3 is expected to confirm that the "default" industrial closure levels under the Indiana RISC policy will be met. More generally, Indiana groundwater standards are set forth at 327 IAC 11. These standards provide criteria "for untreated ground water used as drinking water" (327 IAC 2-11-6) as well as for "limited class" groundwater (327 IAC 2-11-6). The standards apply outside of a default, 300 foot "groundwater management zone" (327 IAC 2-11-9). Because the CMS study has shown that constituent concentrations have attenuated by 99% within 200 feet of IA-1, it is likely that the groundwater standards will be met without any active remediation measures.

Controlling the sources of releases. The previously conducted voluntary corrective measures removed all of the surface and near-surface source material. Residual material in the smear zone -- at a depth of almost 20 feet -- would not be removed under Alternatives 1, 2, and 3. Although Alternative 4 would attempt to remove further source removal, practical difficulties presented by the depth of the residual material and the presence of utilities and buildings in the area may limit the additional control of releases from source material provided by the Alternative.

Compliance with waste management standards. The voluntary corrective measure provided off-site disposal of the source material in compliance with waste management standards. Attempted excavation of the thin layer of material in the smear zone would generate a large volume of soil that would be taken off-site for disposal, and would also require confirmatory sampling to ensure all contaminated soil was removed. In addition, re-filling of the excavated area with clean soil would be required.

Reduction of toxicity, mobility, or volume of contaminants through treatment. Not applicable.

Long-term reliability and effectiveness. All of the alternatives are believed to provide long-term effectiveness, particularly in light of attainment of media cleanup standards (see above). Long term reliability of the deed restriction requires periodic verification of compliance. Alternative 3 would provide formal documentation of this long-term effectiveness over time. Alternative 4 would provide further reliability by removing more of the remaining source material.

Short-term effectiveness. Alternative 4 would provide the most immediate effectiveness but would create risks to workers engaged in deep excavation and from possible volatilization of contaminants and off-site transportation.

Implementability. Alternative 4 has significant issues of technical and administrative feasibility due to the depth of the required excavation and the relatively confined area in which to work, with the presence of utilities and structures.

Cost. Alternative 4 would have dramatically higher costs than the other alternatives. The cost of Alternative 3's sampling and analysis program would be approximately $30,000. The costs of placing the deed restrictions would be minimal.

Evaluation summary. The proposed remedy, Alternative 3 (which also incorporates Alternative 2) would provide a formal demonstration of long-term effectiveness and attainment of media cleanup standards. It would also provide legally enforceable control of potential exposures through a deed restriction. It has significant advantages as compared to Alternative 4 with respect to implementability and cost. Based on the information currently available, Alternative 3 provides the best balance of advantages to disadvantages with respect to the evaluation criteria, while being fully protective of human health and the environment.

IA- 3 – Rectangular and Circular Tar Impoundment

The main alternatives for further work to follow-up on the capping, consolidation, and stabilization performed in 2002 consist of the following:

Alternative 1: No Action

Alternative 2: Deed restrictions: impose restrictions to prohibit the use of groundwater for drinking water and limit use of the land to industrial purposes.

Alternative 3: Continued monitoring: The monitoring alternative consists of semi-annual sampling at wells IA3-OW-1S and IAS-OW-5 for benzene for five years, or until groundwater concentrations reach industrial RISC levels (0.052 mg/l) over two sampling periods. Corrective measures will be initiated if the contaminant plume does not decrease to industrial RISC levels.

Alternative 4: Regular cap inspection and maintenance: The option for ongoing maintenance of the cap consists of semi-annual inspection of the integrity of the cap, documented with digital photographs of the cap condition at the time of inspection, and repair of any breaches or significant erosion.

These alternatives were evaluated and compared in terms of the standards and factors identified above in the discussion of IA-1. Evaluation results are presented below along with an evaluation summary.

Overall protection of human health and the environment. By incorporating deed restrictions, Alternative 2 would provide a formal, legally enforceable mechanism for preventing exposure to groundwater. Alternative 1 may provide a similar level of protection for practical purposes, but this mechanism has no legal enforceability and, so, is not considered further. Alternatives 3 and 4 would also provide formal documentation of protectiveness.

Attainment of media cleanup standards. Alternative 3 is expected to confirm that the "default" industrial closure levels under the Indiana RISC policy will be met. As described above in Section 3.3, Indiana groundwater standards are set forth at 327 IAC 11. These standards provide criteria "for untreated ground water used as drinking water" (327 IAC 2-11-6) as well as for "limited class" groundwater (327 IAC 2-11-6). The standards apply outside of a default, 300 foot "groundwater management zone" (327 IAC 2-11-9). Based on the multiple rounds of data at this IA that show a stable and shrinking plume as well as the remedial work conducted at the impoundment to stabilize the impacted soil and improve its load-bearing characteristics as well as reduce its leachability, alternatives 2, 3 and 4 are expected to meet the groundwater standards.

Controlling the sources of releases. The 2002 capping, consolidation, and stabilization were designed to control the source of releases. Alternative 4 would provide the most assurance that the control remains in place and effective for the continued integrity of the cap.

Compliance with waste management standards. Not applicable.

Reduction of toxicity, mobility, or volume of contaminants through treatment. Not applicable.

Long-term reliability and effectiveness. All of the alternatives are believed to provide long-term effectiveness, particularly in light of attainment of media cleanup standards (see above). Long term reliability of the deed restriction requires periodic verification of compliance. Alternatives 3 and 4 would provide formal documentation and assurance of this long-term effectiveness over time with respect to the groundwater and the remaining source material, respectively.

Short-term effectiveness. No significant problems of short-term effectiveness are raised by any of the alternatives.

Implementability. No significant problems of implementability are raised by any of the alternatives.

Cost. The cost of each of the alternatives is considered reasonable.

Evaluation summary. The proposed remedy is to adopt each of Alternatives 2, 3, and 4. These combined alternatives would provide formal documentation of long-term effectiveness and attainment of media cleanup standards. They would also provide legally enforceable control of potential exposures through deed restriction. This combined remedy is effective and reliable in both the short and long term, and the costs are reasonable. Based on the information currently available, the combination of Alternatives 2, 3, and 4 provides the best balance of advantages to disadvantages with respect to the evaluation criteria, while being fully protective of human health and the environment.

SUMMARY OF ALTERNATIVES AT THE SOUTH FACILITY

The potential corrective measures alternatives considered for the South Facility include the following:

Alternative 1: No Action.

Alternative 2: Deed restrictions: impose restrictions to prohibit the use of groundwater for drinking water and limit use of the land to industrial or educational purposes.

Alternative 3: Removal of sludge from areas with contaminants exceeding soil screening level benchmarks.

These alternatives were evaluated and compared in terms of the standards and factors identified previously in the discussion of IA-1. Evaluation results are presented below along with an evaluation summary.

Overall protection of human health and the environment. By incorporating deed restrictions on the South Facility, Alternative 2 would provide a formal, legally enforceable mechanism for preventing unacceptable exposure to humans by restricting land use for industrial purposes. It would also allow for the section of the South Facility, known as the LCRA, to be used for an educational learning center with conditions that would be protective of human health and the environment. Alternative 1 may provide a similar level of protection as long as it continues to be used for industrial purposes. However, Alternative 1 has no legal enforceability and, consequently, is not considered further. Alternative 3 would reduce the level of exposure to ecological receptors by removing sludge with the highest concentrations of metals. However, disturbing these areas could significantly disrupt or destroy much of the ecological habitat and emerging ecosystems within the area of impact and adjoining ecological communities and, thereby, lose the ecological benefits of the property.

Attainment of media cleanup standards. The South Facility has met the cleanup standards for soil and groundwater that are protective for industrial use. Attainment of media cleanup standards exists under both Alternative 1 and 2, however, the deed restrictions under Alternative 2 would ensure the standards are upheld. Under Alternative 3, contaminants with the highest levels of concern to ecological receptors within the LCRA would be reduced. But at the expense of disrupting or destroying much of the habitat within those areas.

Controlling the sources of releases. Neither Alternative 1 or 2 will eliminate or reduce the contaminants from the South Facility, however, Alternative 2 will protect against the property being used for purposes other than industrial. Alternative 3 would remove contaminants from areas which exhibited the highest concentrations, but would disrupt or destroy much of the habitat from those areas.

Compliance with waste management standards. Alternatives 1 and 2 would not require any removal and disposal of contaminated media. Alternative 3 would require removal of sludge from several areas. All requirements for proper disposal of contaminated media would be followed if required.

Reduction of toxicity, mobility, or volume of contaminants through treatment. Not applicable.

Long-term reliability and effectiveness. All three alternatives will provide long-term reliability and effectiveness in terms of achieving media cleanup standards for industrial use. Alternative 2 will ensure the reliability through a deed restriction that will prevent use of the property beyond industrial use unless other cleanup standards are met. Because Alternative 3 will result in significant disruption or destruction of ecological habitat, it is not considered an acceptable alternative from an ecological perspective.

Short-term effectiveness. The only concern for short-term effectiveness is raised with Alternative 3, which would cause disruption or destruction of ecological habitat.

Implementability. Alternative 2 could be easily implemented. Alternative 3 would create the greatest difficulty in terms of feasibility and availability of required resources.

Cost. Alternative 3 would require the highest cost primarily associated with further investigations and cost for removal of contaminated media.

Evaluation Summary. The proposed remedy, Alternative 2, would use a deed restriction to Provide an enforceable control from potential exposures other than industrial or educational. This control would ensure that the South Facility would only be used in a manner that is protective of human health and the environment.

RECOMMENDATION FOR FINAL REMEDY

Based on the information, the following corrective measures are recommended.

· Institutional controls restricting selected areas of the North facility for industrial use.
· Institutional controls restricting the South facility to either industrial use or educational use as an environmental learning center.
· Groundwater monitoring at IA-1 to facilitate a plume stability demonstration.
· Semi-annual groundwater monitoring at IA-3 for up to five years.
· Ongoing monitoring and maintenance of the cover at IA-3.

PUBLIC PARTICIPATION

The U.S.EPA is soliciting comments from the public on corrective measures alternatives presented in this document for the ISG facility. A public notice will appear in **The Times** newspaper on **April 6, 2006** and a radio announcement can be heard on the WLJE 105.5FM **radio** on **April 6, 2006 between 6:00am and 10:00am**. The U.S. EPA has scheduled a public

comment period of 45 days from April 7, 2006 to May 22, 2006, in order to encourage public participation in the decision process. During the public comment period, the U.S. EPA will accept written comments on the proposed action. You may also obtain more information on the internet at: http://www.epa.gov/reg5rcra/wptdiv/permits/index/htm. The public may submit written comment, questions, and request a public hearing at the following address:

Mr. Daniel Patulski
Chicago, Illinois 60604
Telephone No.: (312) 886-0656
Environmental Protection Agency
77 West Jackson Boulevard, DW-8J

The administrative record is available for review at the following two locations:

Westchester Public Library
200 West Indiana Street
Westchester, Indiana 46304

and

United States Environmental Protection Agency
77 West Jackson Boulevard, DW-8J
Chicago, Illinois 60604
Attention: Daniel Patulski

After U.S. EPA's consideration of the public comments that are received, the comments will be summarized and responses will be provided in a Response to Comments document. The Response to Comments document will be drafted after the conclusion of the public comment period and will be incorporated into the administrative record.