14121

RECORD OF DECISION AMENDMENT
SOURCE CONTROL OPERABLE UNIT
NEAL'S LANDFILL
MONROE COUNTY, INDIANA

PURPOSE

This decision document presents the source control operable unit remedial action for the Neal's Landfill site and amends the Enforcement Decision Document (EDD), dated August 3, 1984. The cleanup remedy for Neal's Landfill has been developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 (CERCLA), and, to the extent practicable, the National Oil Hazardous Substances Pollution Contingency Plan (NCP) and Agency Policy.

The State of Indiana concurs with the cleanup decision in the Record of Decision (ROD) Amendment.

BASIS

The decision to amend the Neal's Landfill EDD and to select a modified remedial action for source control is based upon the administrative record for the site. The attached indexes lists the items that comprise the administrative record for the ROD Amendment.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from Neal's Landfill, if not addressed by implementing the response action selected in this ROD Amendment, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE MODIFIED REMEDY

The original remedy for Neal's Landfill called for the excavation of 320,000 cubic yards of polychlorinated biphenyls (PCBs) contaminated landfill material and treatment through the construction of a permitted, Toxic Substances Control Act (TSCA) approved, municipal solid waste-fired incinerator. The modified remedy for the source control operable unit at Neal's Landfill consists of the following:

- Excavation and removal of selected areas of contamination (referred to as "hot spots") contaminated with greater than 500 ppm PCBs, and disposal of the excavated landfill soils and materials in a TSCA approved commercial chemical waste landfill. The estimated volume of material to be excavated is 7,000 cubic yards of material.

- An additional 41,000 cubic yards of soil and materials will be excavated and sampled to determine if the excavated soil and materials are contaminated with greater than 500 ppm

PCBs. If the excavated soil and materials are contaminated with greater than 500 ppm PCBs, then the soil and materials will be disposed of off-site in a TSCA approved commercial chemical waste landfill. If the excavated soil and materials are contaminated with less than 500 ppm PCBs, then the material will be consolidated on the elevated rock surface in the center part of the landfill and capped.

- The current 18-acre landfill footprint will be reduced to 10-acres by consolidation of excavated soils and materials contaminated with less than 500 ppm PCBs on the elevated rock surface in the center part of the landfill. It is anticipated that through this consolidation the possibility of back-flooding of PCB contaminated soil and materials will be reduced and perhaps eliminated.

- All visible PCB contamination, such as capacitors, capacitor parts, and oil-stained soil and material shall be excavated from the landfill and disposed of at, or treated in, an off-site facility. Pursuant to Toxic Substances Control Act (TSCA) requirements, capacitors containing PCB oil and any free oil will be incinerated in a TSCA compliant incinerator. Also, eight locations have been identified where capacitors were reburied during the interim action and these capacitors will be excavated and disposed of by off-site incineration if they contain PCB oil.

- Construction of a RCRA Subtitle C compliant cap meeting the permeability requirements of 1×10^{-7} cm/sec placed over the consolidated 10-acre landfill to address the low level threat wastes remaining.

- Areas outside the landfill cap and within the Site fence line may contain levels of up to 25 ppm PCBs on average with a maximum value of 50 ppm, but must be covered with 6-inches of clean soil cover. Areas located in drainage waterways outside the cap will be remediated to 1 ppm PCBs. Although no known areas outside the fence at Neal's Landfill are contaminated, if it appears that contamination is present outside the fence line, the area will be remediated to residential/high occupancy PCB standard of 5 ppm with a 6-inch soil cover.

- Development of a long-term inspection and maintenance plan for the landfill cap along with a groundwater and surface water monitoring program for governmental parties approval.

STATUTORY DETERMINATIONS

The selected source control interim action is protective of human health and the environment, complies with Federal and State applicable or relevant and appropriate requirements directly associated with this action, and is cost effective. This action uses permanent solutions and alternative treatment technologies to the maximum extent practicable, given the scope of the action. Treatment by off-site incineration of PCB oil filled capacitors is included as part of the

remedy thereby, meeting the requirement of reduction in toxicity, mobility, or volume through treatment. Off-site landfilling of PCB contaminated landfill material does not reduce the toxicity, mobility, or volume through treatment but is justified based upon the large quantities of municipal landfill waste disposed of at the site along with the court mandated deadline and community opposition to on-site thermal treatment. The low level threat waste remaining on-site will be contained under a RCRA Subtitle C compliant cap.

The source control operable unit remedial action selected in the ROD Amendment does result in hazardous substances remaining on-site above health-based levels but these will be contained under a landfill cap. Subsequent actions are planned to address fully the principal threats posed by this site. Future remedial decisions will be made regarding additional interim and final water treatment and sediment removal. A long-term inspection and maintenance plan along with a groundwater and surface water monitoring plan will be implemented. A Five-Year Review will be conducted after commencement of the remedial action to ensure that residual PCBs do not pose a threat to public health and the environment.

Wm. E. Muno 3/29/99

William E. Muno, Director — Date
Superfund Division

RECORD OF DECISION AMENDMENT
Source Control Operable Unit
Neal's Landfill
Monroe County, Indiana

I. INTRODUCTION

This Record of Decision (ROD) Amendment changes the original remedial action for Neal's Landfill, as described in the Enforcement Decision Document (EDD), dated August 3, 1984, and as further memorialized in the settlement in U.S. v. Westinghouse Electric Corporation, Civil Action Nos. IP 83-9-C and IP 81-448, consolidated, and entered by the U.S. District Court for the Southern District of Indiana in 1985 (the "Consent Decree"). Pursuant to Comprehensive Environmental Response, Compensation and Liability Act CERCLA Section 117 and the National Contingency Plan (NCP), Section 300.435(c)(2)(ii), the United States Environmental Protection Agency (U.S. EPA) is publishing notification of availability of this ROD Amendment. A Proposed Plan was published on December 21, 1998 followed by a 45 day public comment period which ended on February 3, 1999. This ROD Amendment will become part of the Administrative Record for Neal's Landfill pursuant to NCP Section 300.825(a)(2). The Administrative Record for this site is available for review at the offices of the United States Environmental Protection Agency (U.S. EPA), 77 West Jackson, Chicago, Illinois or the Monroe County Public Library, Indiana Room, 303 E. Kirkwood, Bloomington, Indiana.

The alternative remedial action selected in this ROD Amendment is only for the Source Control Operable Unit and future remedial decisions will be published for water treatment at Neal's Landfill and sediment removal in Conards Branch and Richland Creek. This source control operable unit remedy addresses the principle threats posed by the landfill through removal of selected areas of soil and materials contaminated with equal to or greater than 500 parts per million (ppm) polychlorinated biphenyls (PCBs), and referred to in this document as "hot spots". The remaining lower level threat wastes will be consolidated on-site and covered with a cap.

Neal's Landfill is located just west of Bloomington, Indiana (See Figure 1) and operated as a sanitary landfill from 1950 to 1972. In 1966 and 1967, PCB filled capacitors and PCB contaminated rags, sawdust, and filter clay used in the manufacture of capacitors were disposed of at the landfill. It is estimated that between 10,000 and 40,000 capacitors were disposed of at the site. Extensive on-site salvaging of capacitors for the metal components also occurred at the Site. The landfill is approximately 18 acres in size. Mr. Ray Neal, the previous owner and operator of the landfill, hauled PCB-contaminated capacitors and materials to Neal's Landfill under contract from Westinghouse, now known as CBS Corporation (CBS). Mr. Ray Neal owned the site until 1977. From 1977 to 1980, the site was owned by Mr. Richard Neal. The site is now owned by the Taylor Farm Limited Liability Corporation.

Since 1981, numerous field inspections and investigations have been conducted at Neal's Landfill by both U.S. EPA and CBS. Sampling included sediment/surface water sampling in

Conard's Branch and Richland Creek, springs located near the landfill, soils on-site, residential wells in the vicinity of the landfill, monitoring wells on-site and off-site, air monitoring upwind and downwind of the landfill, and sampling of vegetation and fish in Conard's Branch and Richland Creek. The most recent sampling occurred in March/April 1998, when 105 borings were placed within Neal's Landfill. A total of 271 samples were analyzed for PCBs. Values of PCBs ranged from non-detect to 34,796 ppm[1] PCBs. Figure 2 shows the boring locations within Neal's Landfill and Table 1 shows the locations where levels of PCBs were equal to or greater than 500 ppm.

Pursuant to a Stipulation and Order of Preliminary Injunction, CBS conducted interim remedial measures at Neal's Landfill, which were completed in 1984. The interim remedial measures included the following:

- Removal of 122 exposed capacitors and associated contaminated soil with off-site disposal. A total of 80 capacitors at 8 locations were reburied at the site during the interim remedial measures.
- Upgrading the cover over the refuse area, including grading and re-vegetating the surface of the landfill.
- Fencing the perimeter of the site.
- Performing sediment sampling, aerial photographic interpretations, and water balance calculations.
- Placement of sediment filter fences.
- Construction of diversion ditches.

The 1985 Consent Decree required CBS to complete additional interim remedial measures to protect public health and the environment. These measures included the following:

- Sampling of monitoring wells, springs, seeps, and streams both on-site and off-site. Included in the monitoring were selected residential wells within a 5,000-foot radius of the site.
- Capture and treatment in an on-site water treatment plant of the combined flows from South Spring, North Spring and Southwest Seep up to 1.0 cubic feet per second (approximately 448 gallons per minute) to an effluent standard of 1 part per billion PCBs.
- Installation of erosion control fencing.
- Posting of PCB contamination warning signs along Conard's Branch and Richland Creek which flow through the Conard's farm.
- Removal of sediments from Conard's Branch from Neal's Landfill to its confluence with Richland Creek and within Richland Creek from 25 feet upstream of its confluence with Conard's Branch to a point 200 feet downstream from the confluence.

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[1] See Neal's Landfill Sampling Report from Tetra Tech, dated November 30, 1998 for complete results from the March/April 1998 sampling event.

- Sampling of sediments after remediation and establishing a baseline for future monitoring.
- Establishment of a vegetative cover over all disturbed areas.

Since completion of the interim remedial measures by CBS, CBS has continued to perform operation and maintenance and monitoring at Neal's Landfill.

II. REASONS FOR ISSUING THE ROD AMENDMENT

On January 4, 1983, the United States filed a civil action against Westinghouse Electric Corporation, now known as CBS Corporation, pursuant to Section 7003 of the Resource Conservation and Recovery Act (RCRA) and Sections 104, 106, and 107 of CERCLA alleging disposal of PCBs at Neal's Landfill and Neal's Dump in the Bloomington area and seeking relief for the contamination resulting from that disposal. During the fall of 1983, CBS expressed its interest in negotiating a settlement of that suit as well as a civil action filed by the City of Bloomington for improper PCB disposal at two sites owned by the City (the Lemon Lane Landfill and Winston Thomas Wastewater Treatment Plant).

In 1985, U.S. EPA, the Indiana Department of Environmental Management ("IDEM"), Monroe County, and the City of Bloomington (as plaintiffs) entered into a Consent Decree with Westinghouse Electric Corporation ("Westinghouse") for the clean-up of six PCB contaminated sites located in, and around, Bloomington, Indiana. The Consent Decree called for the excavation of nearly 650,000 cubic yards of PCB-contaminated material and the incineration of those materials in a dedicated, two-train, garbage-fired, Toxic Substances Control Act ("TSCA") approved and State permitted incinerator to be built and operated by Westinghouse - the sole Potentially Responsible Party (PRP) responsible as a generator for the PCB contamination. Four of the sites covered by the Consent Decree are NPL sites. Two sites, including Winston-Thomas, are not NPL sites.

After entry of the Consent Decree public opposition to the incinerator rose. Applications of the necessary permits to design and build the incinerator were submitted by Westinghouse in 1991. Beginning in 1991, the Indiana State Legislature passed several laws intended to delay and block the implementation of the incineration remedy required in the 1985 Consent Decree. In February 1994, the parties agreed to jointly explore, under the Operating Principals, alternatives to the incineration remedy for the six sites required under the Consent Decree.

In part as a result of the conclusion that the incineration remedy would not be implemented, the parties began adopting response actions, other than incineration, for the sites covered by the Consent Decree. Thus, On May 27, 1997, U.S. EPA issued an action memorandum selecting a response action for certain PCB-contaminated units at Winston-Thomas. The alternative response action consists of excavation of PCB contaminated soil and sludge and disposal in an appropriate, licensed landfill, as well as decontamination and encapsulation on-site of certain concrete digester tank walls.

On June 3, 1997, the United States lodged with the U.S. District Court the first amendment to the Consent Decree, memorializing the agreement of the parties to the Consent Decree to the response action selected in the action memorandum. On August 18, 1997, the Court entered the first amendment, thus substituting the response action selected in the action memorandum for certain of the units at Winston-Thomas for the incinerator. Further amendments (or stipulations) for other units at Winston-Thomas, as well as the other Consent Decree sites, have been submitted to the Court as appropriate.

On January 30, 1998, U.S. EPA issued an action memorandum in response to a judicial order issued on November 21, 1997 for the clean-up of the interim storage facility, which stored PCB contaminated soil and sediment from other Bloomington, Indiana, sites. CBS implemented the selected response action upon approval by all of the parties, and with the knowledge of the court, of a work plan.

On May 12, 1998, U.S. EPA issued an action memorandum for the completion of the clean-up of Winston Thomas. The units addressed include the abandoned lagoon, trickling filter and the tertiary lagoon. The clean-up of the tertiary lagoon, which covers 17 acres and is filled with water, involves dredging of PCB contaminated sludge. All material excavated from the tertiary lagoon and the abandoned lagoon will be landfilled. On May 18, 1998, the United States lodged with the U.S. District Court the stipulation changing the terms of the Consent Decree, and memorializing the agreement of the parties to the Consent Decree to the response action selected in the action memorandum. The changes provide for the clean-up of the largest and most complicated units at Winston Thomas - the abandoned lagoon and the tertiary lagoon. On June 8, 1998, the Court entered the stipulation, thus substituting the response action selected in the action memorandum for certain of the units at Winston-Thomas for the incinerator.

On October 16, 1998, the U.S. EPA issued a ROD Amendment for alternative remedies for both Neal's Dump and Bennett's Dump. On February 8, 1999, the Court entered an amendment to the Consent Decree memorializing the change to the remedy for Neal's Dump.

Having already adopted a response action other than incineration for Winston-Thomas, Bennett's Dump, and Neal's Dump and, because the incinerator still has not been constructed and is unavailable to address the PCB contaminated soils and materials, the parties explored alternatives to incineration for Neal's Landfill.

In November 1997, Federal Judge Hugh Dillin issued a judicial order directing the six Consent Decree sites to be remediated by December 1999 and assigned Magistrate Judge Kennard Foster to oversee the progress of the parties toward meeting the December 1999 deadline. On February 1, 1999 Judge Dillin issued a new judicial order directing that the Consent Decree parties have until December 31, 2000 to complete all the source control remedies for the Consent Decree sites. The judicial order also provided for further negotiations between the governmental parties and CBS regarding water treatment, sediment removal, and other matters.

In short, the amendment to the remedial decision at Neal's Landfill is driven in part by the need for an alternative to the incineration remedy since the original proposed incinerator cannot be built in time to dispose of all the materials that are to be excavated and removed from the sites, and in part by the consensus of the Parties that an alternative is necessary. After discussions with the governmental parties and CBS Corporation, the U.S. EPA issued a Proposed Plan for the Neal's Landfill source control operable unit for public comment on December 21, 1998. A public hearing was held in Bloomington, Indiana, on January 27, 1999. The public comment period ended 45 days later on February 3, 1999. The public comments have been considered and are addressed in the Responsiveness Summary that accompanies this ROD Amendment.

III. SCOPE AND ROLE OF OPERABLE UNIT

The U.S. EPA's ROD Amendment addresses the source control operable unit at Neal's Landfill. Further groundwater, surface water and sediment investigations will be conducted to supplement the current information. Once the additional information is available, a second and third operable unit will be implemented, if necessary, to address the principal threat and the release of PCBs from Neal's Landfill and PCB contamination within Conard's Branch and Richland Creek. The contaminated groundwater which becomes surface water may pose a threat to human health and the environment and will be addressed in Operable Unit 2. Operable Unit 3 will address sediment contaminated with PCBs from Neal's Landfill in Conard's Branch and Richland Creek.

IV. SUMMARY OF SITE RISKS

Site risks were identified in the August 3, 1984 Enforcement Decision Document (EDD). This ROD Amendment for the Source Control Operable Unit addresses certain, but not all, of the risks identified in the EDD and its supporting materials. Since the date of the EDD, additional information and data have been developed, and are described in this document, which support changing the nature and scope of source control measures. The administrative record for this ROD Amendment includes the supporting information and data.

During the March/April 1998 PCB sampling event, high concentrations of PCBs were discovered within Neal's Landfill. Figure 2 shows the locations and concentrations of PCBs discovered during the investigation. A concentration as high as 34,795 ppm PCBs was found in the investigation. In reviewing the data, a number of areas within the landfill showed high concentrations of PCBs, including areas in the north and southeast portion of the site which are at elevations prone to backflooding. Backflooding provides a migration pathway for PCBs due to PCBs coming into contact with water.

The release and threatened releases of PCBs from Neal's Landfill which have contaminated sediments and groundwater and produced unacceptable risk will be addressed through future operable unit decision documents.

V. DESCRIPTION OF THE NEW ALTERNATIVES

The original remedial action for Neal's Landfill called for the excavation and incineration of an estimated 320,000 cubic yards of PCB contaminated landfill waste. During discussions with Magistrate Judge Foster regarding sampling within Neal's Landfill for PCBs, a disagreement arose between CBS and the governmental parties regarding the scope and extent of the sampling within Neal's Landfill. On February 13, 1998, Magistrate Judge Foster issued a judicial order requiring CBS to complete its proposed sampling within Neal's Landfill of 13 borings in the southeast corner of the site and for U.S. EPA to complete 78 borings over the remainder of the landfill. This sampling was completed in March/April 1998 and, based upon the March/April 1998 sampling event, five remedial alternatives were identified for the source control operable unit. The alternatives were developed by the U.S. EPA in consultation with the other governmental parties and ranged from no action to complete excavation.

In the Record of Decision Amendment for Bennett's Dump and Neal's Dump, U.S. EPA, in consultation with the other governmental parties, evaluated three landfill disposal options for materials containing, or contaminated with, PCBs. The three disposal options included constructing a chemical waste landfill at Bottom Road, placing the PCB-contaminated material from the Consent Decree sites on top of Neal's Landfill and off-site disposal in a chemical waste landfill. In evaluating the disposal options for both Neal's Dump and Bennett's Dump, the U.S. EPA determined that off-site disposal of excavated PCB-contaminated soils and materials in a chemical waste landfill was the best alternative. During discussions with the other governmental parties and CBS regarding the disposal option alternatives for Neal's Landfill, it was agreed that disposal in an off-site TSCA-approved, commercial, chemical waste landfill was appropriate and that local disposal would not be considered.

Neal's Landfill Alternatives

For the reasons already discussed, the incineration remedy originally called for is not a viable treatment alternative for the PCB contaminated soil and materials at Neal's Landfill. Accordingly, although the incineration remedy would have satisfied the nine criteria had it been built, under current conditions the incineration remedy fails to meet the implementability, community acceptance, and State acceptance criteria. Because the incinerator currently does not exist and in light of the court mandated deadline, the following discussion of the source control alternatives excludes incineration as contemplated in the Consent Decree.

Alternative 1 - No Action

The "no action" alternative would leave the Neal's Landfill interim cap in place without modifications and would not require the removal of PCB-contaminated soils and materials. CBS would develop a long-term monitoring plan that would be subject to the approval of governmental parties approval for monitoring groundwater and surface water at and near Neal's Landfill.

Alternative 2 - Construction of a RCRA Subtitle C Compliant Cap Over the Landfill Surface.

Alternative 2 consists of construction of a Resource Conservation Recovery Act (RCRA) Subtitle C compliant cap over the entire existing 18-acre landfill. A Subtitle C compliant cap consists of a multi-layer design and meets the requirements of 40 CFR Part 264.300. The RCRA Subtitle C compliant cap must meet a permeability requirement of less than 1×10^{-7} centimeters per second and conceptually, the cap consists of 6-inches of top soil, 2-feet of clean fill to prevent the clay layer from being affected by frost, a drainage layer, a minimum of 40 mil flexible membrane liner and 2-feet of compacted clay. Areas outside the 18-acre landfill cap, but within the fence line of the Site, may contain PCB levels at 25 ppm PCBs on average, with a maximum value of 50 ppm PCBs with a 6-inch soil cover.

There are a number of naturally occurring drainage waterways running through the landfill, as well as in the immediate vicinity of the landfill. Naturally occurring drainage waterways that lie outside of the RCRA Subtitle C landfill cap will be sampled and remediated to 1 ppm PCBs to address the possibility of transport of PCBs from the drainage waterways. Further, additional drainage waterways will be constructed to control water run-off from the landfill and the surrounding areas. These drainage waterways outside the RCRA Subtitle C cap also will be sampled and remediated to 1 ppm PCBs to address the possibility of transport of PCBs from the drainage waterways. Although there are no known contaminated areas outside the fence at Neal's Landfill, if it appears that contamination is present outside the fence line, those areas will be remediated to residential/high occupancy PCB standard of 5 ppm with a 6-inch soil cover. CBS will be required to develop a long-term inspection and maintenance plan for the landfill cap along with a groundwater and surface water monitoring program for governmental parties approval.

Alternative 3 - Excavation of "Hot Spots" Equal to or Greater Than 500 parts per million PCBs with Off-site Disposal and Placement of a RCRA Subtitle C Compliant Cap over the Landfill Surface

Alternative 3 consists of removing selected areas of contamination, referred to as "hot spots", contaminated with equal to or greater than 500 ppm PCBs and disposal of the excavated "hot spot" soils and materials in a TSCA-approved, commercial chemical waste landfill capable of accepting PCB materials contaminated at levels equal to or greater than 500 ppm PCBs. The 500 ppm PCBs value was determined to be a principal threat based on U.S. EPA PCB guidance. Soil and materials contaminated with equal to or greater than 500 ppm PCBs would be considered source material. Source material is defined as material that can act as a reservoir for migration of contamination to groundwater or surface water. Table 1 shows the boring locations where contamination level of equal to or greater than 500 ppm PCBs were disclosed. The large volume of landfill material contaminated with less than 500 ppm PCBs is considered a low level threat and will be addressed in this operable unit through containment.

Figure 3 shows the locations of the PCB "hot spots" contaminated with equal to or greater than 500 ppm PCBs, based upon the March/April 1998 sampling event at Neal's Landfill. The estimated volume of material to be excavated and disposed of off-site is 7,000 cubic yards of material. In addition, all visible contamination, such as capacitors, capacitor parts, and oil-stained material shall be excavated from the landfill and disposed of at, or treated in, an off-site facility. Pursuant to TSCA, capacitors containing PCB oil, and all free oil, must be incinerated in a TSCA approved incinerator pursuant to 40 CFR 761.70. In addition to removal and off-site disposal of the areas contaminated with equal to or greater than 500 ppm PCB, a RCRA Subtitle C compliant cap, as described in Alternative 2 and meeting the permeability requirements of 1 x 10^{-7} cm/sec, will be placed over the entire 18-acre landfill to address the low level threat wastes remaining. Also, eight locations have been identified where capacitors were reburied during the interim action and these capacitors will be excavated and disposed of through off-site incineration if they contain PCB oil.

Areas outside the landfill cap, but still within the Site fence line, may contain levels of 25 ppm PCBs on average with a maximum value of 50 ppm, but must have a 6-inch soil cover. As described in Alternative 2, areas located in drainage waterways (both naturally occurring and man made) outside the cap will be remediated to 1 ppm PCBs. Even though no known areas outside the Site fence are contaminated with PCBs, if it is discovered that contamination is present outside the fence line, the area will be remediated to residential/high occupancy PCB standard of 5 ppm PCBs, and covered with a 6-inch clean-soil cover. CBS will be required to develop a long-term inspection and maintenance plan for the landfill cap along with a groundwater and surface water monitoring program for governmental parties approval.

Alternative 4 - Excavation of 'Hot Spots" Contaminated with Equal to or Greater than 500 ppm PCBs with Off-site Disposal, Consolidation of Landfill Material to the Center Portion of the Landfill and Placement of a RCRA Subtitle C Compliant Cap over the Reduced Landfill Surface

This alternative consists of excavating and removing 7000 cubic yards of material estimated to be contaminated with equal to or greater than 500 ppm PCB as described in Alternative 3. In addition to the excavation and disposal of the identified "hot spot" areas, the March/April 1998 sampling suggest that other, additional landfill areas may contain PCB contamination at levels equal to or greater than 500 ppm PCBs. The contour lines drawn in Figure 4 represent possible areas equal to or greater than 500 ppm PCBs and those areas will be excavated and sampled. The estimated volume of material within the contours is 41,000 cubic yards and this material will be sampled to determine if material is contaminated with equal to or greater than 500 ppm PCBs. If sampling demonstrates that the material is contaminated with equal to or greater than 500 ppm PCBs, then this material will be disposed of off-site in a TSCA-approved commercial chemical waste landfill. If the sampling establishes that the material is contaminated with less than 500 ppm PCBs, then the material may be consolidated on the elevated rock surface in the center part of the landfill. For cost purposes, EPA estimates that 13,000 cubic yards of material will be taken off-site for disposal, in addition to the 7,000 cubic yards described above. Based upon the

PCB sampling and analysis, the volume of material to be disposed of off-site in a TSCA-approved, commercial chemical waste landfill is between 7000 cubic yards and 48,000 cubic yards. As described in Alternatives 2 and 3, all visible contamination, such as capacitors, capacitor parts and oil-stained material shall be excavated from the Site and disposed of at, or treated in, an off-site facility. Pursuant to TSCA, capacitors containing PCB oil and all free oil must be incinerated in a TSCA compliant incinerator pursuant to 40 CFR 761.70.

The natural geology of Neal's Landfill is such that the center portion of the site is a bedrock ridge that is at an elevation less prone to backflooding. Backflooding occurs when water from rain events travels through the underground karst conduits at the Site and the water backs up within those conduits. The water is forced to the surface and, in the case of Neal's Landfill, the lower-lying landfill material becomes saturated. The saturation with water of the PCB-contaminated soils and materials in the Site makes migration of PCB material from the landfill more likely. The southeast portion of Neal's Landfill and the area north of the current landfill slope may be subjected to backflooding. These conclusions are based on physical observations and the measured elevations of the ground surface at those locations.

The southeast portion of the landfill below the contours shown in Figure 4 and the area defined north of the slope will be excavated and consolidated on top of the higher, bedrock, center portion of the site. Excavation of these areas and the consolidation of the excavated soils and materials will decrease the landfill's size from the current 18-acres to 10-acres. A conceptual footprint of the 10-acre landfill along with the elevation of the rock surface is shown in Figure 5. The 10-acre landfill footprint covers an area that is less prone to backflooding than the current Site footprint. A RCRA Subtitle C compliant cap will be placed over the entire 10-acre consolidated landfill. The cap will meet the RCRA Subtitle C landfill cap permeability requirements of less than 1×10^{-7} cm/sec. The cap is conceptually described in Alternative 2. Also, eight locations have been identified as areas where capacitors were reburied during the interim action and these capacitors will be excavated and disposed of by incineration.

Areas outside the landfill cap, but within the current fence line, must be remediated to an low occupancy/industrial PCB cleanup standard. Using 40 CFR 761.61, a cleanup value of 25 ppm on average with a maximum allowed value of 50 ppm is appropriate with a 6-inch clean-soil cover. As described in Alternative 2, areas located in drainage waterways (both naturally occurring and man-made) outside the cap will be remediated to 1 ppm PCBs. Even though no known areas outside the Site fence are contaminated with PCBs, if it is discovered that contamination is present outside the current fence line, the area will be remediated, pursuant to 40 CFR 761.61, to residential/high occupancy PCB standard of 5 ppm PCBs and covered with a 6-inch clean-soil cover. CBS will be required to develop a long-term inspection and maintenance plan for the landfill cap along with a groundwater and surface water monitoring program for governmental parties approval.

After consolidation on the elevated rock surface in the center part of the landfill and capping of the consolidated area, a new fence may be erected around the perimeter of the new, smaller

landfill footprint. With appropriate deed restrictions limiting use of the areas outside of the new, smaller landfill footprint to industrial/low occupancy uses, then the existing fence surrounding the Site may be removed.

Alternative 5 - Total Excavation of Neal's Landfill to a Residual PCB Level of 25 ppm and Placement of a Soil Cover Over the Excavated Area.

In this alternative, the entire landfill would be excavated to industrial cleanup standard of 25 ppm PCBs on average and the excavated soils and materials disposed of off-site. The capacitors will again be excavated and disposed of by incineration. The remaining soils with PCBs on average of less than 25 ppm would be covered with a minimum of a 10-inch soil cover. Under this alternative, the estimated volume of material to be excavated is 320,000 cubic yards. A groundwater and surface water monitoring plan would be developed and would continue for at least 5 years. As part of the Five-Year Review process the monitoring program will be reevaluated and either discontinued, continued, or modified and continued as modified.

With respect to each of these alternatives, if hazardous substances are left on-site, appropriate deed restrictions will be required.

VI. EVALUATION OF ALTERNATIVES

The U.S. EPA uses nine evaluation criteria as set forth in the National Contingency Plan, 40 CFR Part 300.430, to evaluate the fundamental change and the different alternatives associated with the change in remedy. The selected alternative is the alternative for each fundamental change that complies with Criteria 1 and 2, achieves the best balance among Criteria 3-7, and considers Criteria 8 and 9.

The nine evaluation criteria are listed below:

Criteria 1 - Overall Protection of Human Health and Environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

Criteria 2 - Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) addresses whether or not a remedy will meet all other Federal and State environmental statutes and/or provide grounds for issuing a waiver.

Criteria 3 - Long-Term Effectiveness and Permanence refers to the amount of risk remaining at a site and the ability of a new remedy to maintain reliable protection of human health and the environment over time once cleanup standards have been met.

Criteria 4 - Reduction of Toxicity, Mobility, or Volume through Treatment is the anticipated

performance of the treatment technologies that may be employed in a remedy.

Criteria 5 - Short-Term Effectiveness refers to the speed with which the remedy achieves protection, as well as the remedy's potential to create adverse impacts on human health and the environment that may result during the construction and implementation period.

Criteria 6 - Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement the chosen solution.

Criteria 7 - Cost addresses the estimated capital and operation and maintenance costs, as well as present-worth cost. Present worth is the total cost of an alternative in terms of today's dollars.

Criteria 8 - Support Agency Acceptance indicates whether, based on its review of the ROD Amendment, the support agency (usually a state environmental agency) concurs with, opposes or has no comment on the recommended alternative.

Criteria 9 - Community Acceptance is assessed in the Record of Decision following a review of the public comments received on the Proposed Plan Amendment.

Five alternatives were evaluated against the nine criteria for the remediation of Neal's Landfill. The No Action Alternative does not comply with the criteria of overall protection of human health and the environment and compliance with applicable or relevant and appropriate requirements and will not be evaluated further.

- Overall Protection of Human Health and Environment

  Alternatives 2 through 5 all are protective of human health and the environment for the Source Control Operable Unit at Neal's Landfill. Alternative 5 would be the most protective since complete removal of PCB landfill material to 25 ppm PCBs occurs. Alternative 3 is more protective than 2 due to the hot spot removal. Alternative 4 would be more protective than Alternative 2 or 3 since material equal to or greater than 500 ppm PCBs will be disposed of off-site and large quantities of low level PCB contaminated landfill material will be consolidated to areas which are less prone to backflooding, thereby limiting the migration of PCBs from the landfill. It is important to note that none of the Alternatives are protective overall without further consideration of water treatment for the springs and sediment removal in Conard's Branch and Richland Creek.

- Compliance with Applicable or Relevant and Appropriate Requirements

  Alternatives 2 through 5 for the source control operable unit at Neal's Landfill must meet ARARs, unless an ARAR waiver under CERCLA Section 121 (d)(4) is obtained. In this case, no ARAR waivers are anticipated for the four alternatives. Under TSCA, small

capacitors, defined as containing less than 3 pounds of PCBs (40 CFR 761.3), and filled with PCB oil, can be disposed of in a municipal landfill (40 CFR 761.60). On the other hand, large capacitors (40 CFR 761.3) must be incinerated (40 CFR 761.60). It is anticipated that mainly large capacitors will be present at Neal's Landfill. It is unknown if the capacitors will be filled with PCB containing oil or if the capacitors will be empty. There is environmental benefit to disposing small PCB oil-filled capacitors in a TSCA approved compliant landfill, and CBS does not object to this requirements with respect to small capacitors. PCB-contaminated soils and materials excavated from the two sites can be landfilled in TSCA approved and compliant landfill. Consistent with TSCA, large and small capacitor carcases that are broken or cracked open, and do not contain any PCB oil. constitute debris and are not capacitors within the meaning of 40 CFR 761.60, may be disposed of in a TSCA approved and compliant landfill.

- Long-Term Effectiveness and Permanence

Comparing Alternatives 2 through 5 for the source control operable unit, Alternative 5 is the most permanent and effective of the four alternatives evaluated even though without further evaluation of water treatment and sediment removal, the long-term effectiveness is limited for all the alternatives. Alternative 5 removes PCB contaminated landfill material to 25 ppm PCBs on average and disposes of the material in a chemical waste landfill along with incinerating the PCB oil and PCB oil-filled capacitors. Alternative 4 removes principal threat PCB landfill material equal to or greater than 500 ppm and takes landfill areas more prone to backflooding and consolidates the landfill material under a RCRA cap. As with Alternative 5, PCB oil and PCB oil filled capacitors will be permanently destroyed by incineration under Alternative 4, though Alternative 5 may incinerate a greater number of capacitors. Alternative 3 will also remove PCB contaminated landfill material to a chemical waste landfill and permanently destroy PCB oil and PCB oil filled capacitors through incineration even though not to the extent of Alternative 5 or Alternative 4. Capping the landfill as described in Alternative 2 and Alternative 3 will not be as effective as Alternative 4 since PCB contaminated landfill material will be suspectable to backflooding.

- Reduction of Toxicity, Mobility, or Volume Through Treatment

Alternatives 3, 4 and 5 all use incineration as treatment for the capacitors containing PCB oil. Since Alternative 5 excavates the entire landfill, more capacitors may possibly be incinerated compared to Alternative 4 or Alternative 3. The majority of the material for Alternatives 2 through 5 is PCB containing soil/material and will not undergo treatment but will be disposed of in a chemical waste landfill. Treatment is not a component of Alternative 2.

- Short-Term Effectiveness

  Alternative 2 would result in the least short-term adverse impacts upon human health and the environment during the construction and implementation period since excavation does not take place in Alternative 2. Alternative 5 would result in the most short-term adverse impacts on human health and the environment since 320,000 cubic yards of potentially PCB contaminated material is excavated. Approximately 120,000 cubic yards of potentially PCB contaminated material will be excavated in Alternative 4 for off-site disposal or consolidation. Health and safety procedures such as air monitoring will be put in place which will minimize the risk of exposure to PCBs and other hazardous constituents.

- Implementability

  Alternative 5 would be the most difficult to implement due to the large quantity of PCB contaminated material that must be disposed of off-site in a chemical waste landfill. The 320,000 cubic yards of potentially PCB contaminated material would require over 21,000 semi-truck loads. The large quantity of material to be moved if Alternative 5 is implemented would also force local disposal of the PCB contaminated material to be considered. Alternative 4 and Alternative 3 use a combination of off-site disposal and containment which has been used frequently at many other landfill sites. Alternative 2 would be the easiest to implement since no excavation is involved.

- Cost

  The cost of Alternative 5 is estimated to be $80.24 million which is approximately 5 times more expensive than the $16.13 million required for Alternative 4. This large difference is due to the large quantities of material that are disposed of off-site in a chemical waste landfill in Alternative 5. The estimated cost for Alternatives 2, 3 and 4 are $10.72 million, $13.12 million and $16.13 million respectively.

- State Acceptance

  The State of Indiana supports Alternative 4.

- Public comments have been addressed in the Responsiveness Summary.

In comparing Alternatives 2, 3, 4 and 5 to each other and against the nine criteria, the best balance among the nine criteria is Alternative 4. Alternative 5 is more protective because it removes the entire landfill but water treatment and sediment removal may still be required with this alternative. Alternative 4 removes the principal threat material equal to or greater than 500 ppm PCBs to an off-site landfill and consolidates PCB contaminated material to areas on-site which are less susceptible to backflooding. Alternative 2 and Alternative 3 leave material in

locations that even with a RCRA Subtitle C compliant cap, migration of PCBs will not be reduced due to areas subjected to backflooding. Implementing Alternative 5 would be difficult due to the large quantities of material that would have to be disposed of off-site and U.S. EPA's concern of moving entire landfills to other communities. In addition, the cost of Alternative 5 is approximately 5 times more expensive than Alternative 4 and without the further evaluation of water treatment and sediment removal, Alternative 5 may still not be protective.

The following are the major ARARs for Alternative 4 for the source control operable unit at Neal's Landfill.

Surface Water Quality Standards	327 IAC 15-5
Surface Water Quality Criteria	33 USC 1311, 1312, 1313, 1314, 1317
Ambient Water Quality Criteria	40 CFR 129.105
Water Quality Standards	327 IAC 2-1-6
Storm Water Discharges	40 CFR Parts 122.26, 33 USC 402(p)
Transportation	49 CFR 171
Fugitive Dust Control	326 IAC 6-4-2
Incineration of PCBs	40 CFR 761.70 & 40 CFR 264
Chemical Waste Landfills	40 CFR 761.75
TSCA Spill Policy	40 CFR 761.120-139 - Not an ARAR but a "to be considered"
PCB Remediation Waste	40 CFR 761.61 - Not an ARAR but a "to be considered"
Alternative Disposal for PCBs	40 CFR 761.60(e) & 329 IAC 4-1-5(7)
Waste Characterization	329 IAC 3.1 - 6.1
Hazardous waste manifests	329 IAC 3.1-7-1 through 13
Manifest Requirements	40 CFR 761.207, 208, 209
Management of Solid Waste	329 IAC 10-4-2 & 329 IAC 10-2-174
Disposal of PCBs	40 CFR 761.60
Off-site Disposal Regulations	40 CFR 300.440
Large Quantity Generator	40 CFR 262
Transporter requirements	40 CFR 263 and 329 IAC 3.1-8-1 & 2
Land Disposal Restrictions	40 CFR 268.40
Closure & Post Closure Care	40 CFR 264.310(a)
Land Disposal Restrictions	40 CFR 268

The listed ARARs are associated with this source control operable unit. Other ARARs may be identified in connection with other operable units.

VII. STATUTORY DETERMINATION

The modified remedy for the Source Control Operable Unit at Neal's Landfill includes the excavation and off-site disposal of principal threat material and consolidation and capping of

material classified as a long-term, low level threat. Treatment by off-site incineration of capacitors containing PCB oil is a component of the remedy and soil/material greater than or equal to 500 ppm PCBs will be disposed of in a approved chemical waste landfill. The new remedy satisfies the requirements of CERCLA 121 and a portion of the property not affected by the landfill cap may be redeveloped.

Table 1

SUMMARY OF PCB DETECTIONS EQUAL TO OR EXCEEDING 500 PPM

Boring No.	Date Data Collected	Sampling Depth (feet bgs)	PCB Concentration (ppm)[a]
CBS-SB3	03/30/98	0 - 3	1,200
		3 - 6	1,000
CBS-SB4	03/30/98	5 - 6.5	500
CBS-PZ5[b]	03/31/98	10 - 12.5	2,600
		10 - 12.5S	577
CBS-SB8	03/31/98	5 - 8	2,500
CBS-SB9	03/31/98	15 - 18.5	900
CBS-SB13	03/31/98	15 - 16 D	516
		15 - 16 S	514
NL-SB19	03/27/98	2 - 3	15,152
		2 - 3 D	7,792
NL-SB26	03/26/98	5.5 - 9 D	952
NL-SB44	03/25/98	10 - 12.5	9,211
		10 - 12.5 D	34,796
		13 - 13.5	642
NL-SB50	03/23/98	10 - 13	7,979
NL-SB52	03/24/98	15 - 18	3,766
		18 - 21	1,805
NL-SB58	03/23/98	13 - 16	4,993
NL-SB59	03/23/98	10 - 13	925
NL-SB77	03/24/98	1 - 4	2,778
NL-SB80	03/26/98	1 - 3	6,588
NL-SB84	03/27/98	0.5 - 1	1,436
NL-SB92	03/26/98	3 - 6	505
NL-PZ93[b]	03/28/98	10 - 12.5	12,516
		15 - 16	5,017
		15 - 16 D	17,483
		17 - 17.5	511

RESPONSIVENESS SUMMARY
Neal's Landfill
Monroe County, Indiana

1. **Comment:** Five commentors stated that they support Alternative 4 and indicated that they would like the progress to continue on the cleanup.

   Response: The U.S. EPA agrees that Alternative 4 is the best alternative for the source control operable unit but future remedial decisions for water treatment for the nearby springs and sediment removal in Conards Branch and Richland Creek are required.

2. **Comment:** One commentor stated that Alternative 5 should be the preferred remedy and the commentor does not agree with the U.S. EPA policy of not digging up landfills. In addition, the karst limestone could be a engineering challenge and a real problem for additional releases of PCBs. The commentor also states that a on-site thermal treatment unit should be considered to reduce the potential threats from these materials.

   Response: The U.S. EPA does not agree with the commentor. By excavating 320,000 cubic yards of municipal landfill material and disposing of the landfill off-site in a permitted facility is cost prohibitive and would still will require both water treatment and sediment removal. In addition, the issue of local disposal at the Bottom Road location which is property owned by CBS would have to be considered based upon discussions with the court. The U.S. EPA does not support local disposal in the Bloomington area. The commentor is correct that the karst limestone will continue to allow the release of PCBs but alternative 4 removes the principal threat material and consolidates low level PCB contaminated landfill material to areas of the site which are not subjected to backflooding. This source control along with future remedial actions for water treatment and sediment removal will result in a remedy that is protective of public health and the environment.

   The commentors comment on implementing a thermal treatment unit at Neal's Landfill is not appropriate based upon the Indiana regulation against reviewing any permit associated with thermal treatment and the public's opposition to incineration.

3. **Comment:** One commentor stated that Alternative 5 is the best alternative but supports Alternative 4 at this time due to the excess cost. The commentor also states that a mobile thermal treatment unit should be used for material that will be consolidated on-site.

   Response: The U.S. EPA agrees with the commentor that a mobile thermal treatment could work at this site but based upon the State of Indiana regulation against reviewing any permit associated with thermal treatment and the communities opposition, thermal treatment was not considered in the Alternatives to address Neal's Landfill.

4. **Comment:** CBS states the it understands that the U.S. EPA is going through the remedy selection and public participation process under CERCLA, the ultimate selection and implementation of a remedy to these sites is subject to the 1985 Consent Decree and to the voluntary agreement of the parties on alternatives. To the extent that EPA's proposed plan conforms to the negotiated agreement among the parties, CBS will not object to the decisions.

Response: The U.S. EPA has the decision making authority under the CERCLA statute and CBS has agreed to the operating principles, which included using the ROD Amendment process. In addition, U.S. EPA will accept and take into consideration public comments on all the site remedies. Therefore, CBS will have the opportunity to present disagreements to the court. Based upon CERCLA, however, U.S. EPA has the remedy decision making authority. The U.S. EPA will continue to try to come to an agreement with CBS on the remaining sites, but any agreement must be consistent with the safeguards set up in the applicable regulations for a ROD Amendment, such as taking into consideration public comments.

5. **Comment:** CBS states that the proposed plan indicates that it only covers source control measures and not water treatment or sediment removal and the future decisions about those issues will be made later. CBS states that is has complied with the Consent Decree regarding water treatment at Neal's Landfill and has removed sediments from Conards Branch and Richland Creek. CBS states that it is prepared to discuss the performance of additional work with the governmental parties and implement such work if an agreement can be reached but to do so would go beyond its obligations under the Consent Decree and applicable law.

Response: CBS is correct that the proposed plan only addresses source control and that future decisions will be put forth by the Agency on water treatment and sediment removal. The U.S. EPA is of the opinion that water treatment and sediment removal must be negotiated on its own merits and without the further evaluation of additional water treatment and sediment removal, the proposed source control remedy would not be protective.

6. **Comment:** CBS states that in the site description and history section, it should be noted that the parties have requested an extension to the December 1999 deadline and the Special Master has recommended to Judge Dillin that the extension be given.

Response: On February 1, 1999, Judge Dillin did issue an order which extends the deadline for completion of the source control portion of Lemon Lane Landfill and Neal's Landfill to December 2000. This extension will be reflected in the ROD Amendment.

7. **Comment:** CBS states that they have no record of 40,000 capacitors being disposed of at Neal's Landfill and indicate that a more accurate number is 10,000 capacitors.

Response: The U.S. EPA has records which state that over 40,000 capacitors were disposed of at Neal's Landfill but has not verified that number. The ROD Amendment will reflect a range of disposal from 10,000 to 40,000.

8. **Comment:** CBS states that descriptions of Alternatives 2, 3, 4 and 5 state that areas outside the landfill cap may contain levels as high as 25 ppm PCBs on average but must contain a 10-inch soil cover. CBS disagrees that a soil cover is required and under 40 CFR 761.61 (a)(4)(I)(B)(1) justifies that a soil cover is not required.

Response: CBS is correct that according to 40 CFR 761.61, a soil cover is not required but the Agency will not agree to leaving 25 ppm PCBs without some soil cover to protect ecological receptors. Therefore, a 6-inch soil cover is required over the areas that do not contain a landfill cap.

9. **Comment:** CBS states that is does not agree with the statement that total excavation is the most protective remedy because this fails to acknowledge the risks associated with removal activities and the risks of disposing material elsewhere. Total excavation is also inconsistent with EPAs hot spot removal approach under CERCLA and with the principals of the new TSCA PCB rule.

Response: Alternative 5 would be the most protective remedy since the entire landfill is removed for off-site disposal. CBS is correct that risks are associated with removing and disposing of the material and are addressed in the implementability and short term effectiveness criteria. The U.S. EPA is of the opinion that Alternative 4 is the best balance of the nine criteria, even if Alternative 5 is more protective since other criteria such as implementability and short term effectiveness would favor Alternative 4.

10. **Comment:** One commentor supported Alternative 4 due to the high cost for Alternative 5 without achieving a greater result. The commentor also states that areas surrounding the landfill should be remediated since contaminated water leaves the property. Also, the commentor states that it should be determined if other lower concentrations than 500 ppm would be more protective. In addition, the commentor states that the water treatment plant should be expanded and contaminated sediments should be removed.

Response: The U.S. EPA agrees that Alternative 4 is the best alternative but further water treatment and sediment removal must be evaluated to ensure the remedy is protective of public health and the environment. The commentor is correct that surrounding areas may be contaminated from the water leaving the springs at Neal's Landfill, specifically the floodplain areas. The floodplain areas will be addressed during the remediation of the sediment in Conard's Branch and Richland Creek. Regarding the Agencies setting of 500 ppm PCBs as a principal threat level, the Agency used EPA guidance and to lower the principal threat number to a value under 500 ppm PCBs would not provide additional risk reduction in our opinion. In addition, most of the material that contains PCBs at lower

levels such as 100 to 200 ppm will also be excavated with the 500 ppm material. The volume of material not to be excavated at 100 to 200 ppm levels is minimal, is located near borings PZ24, SB74, and SB95 in areas not prone to backflooding that will be capped. By containing the remaining landfill material and consolidating large areas of the landfill to the center area of the site to limit backflooding, the releases from the site will be minimized. The U.S. EPA is beginning discussions with CBS regarding water treatment and sediment removal. The Agency is of the opinion based upon current data that the water treatment plant will require expansion and sediment removal will be necessary to reduce the risks to ecological receptors.

11. **Comment:** One commentor states their support for alternative 4 since it is cost effective and will avoid delays associated with alternative 5. In addition, the commentor states that water poses the largest risk and long term groundwater monitoring is important along with improving the water treatment plant near the springs.

Response: The U.S. EPA agrees with the commentor and the Agency is the process of developing a proposal for CBS to implement regarding a water investigation at Neal's Landfill.

12. **Comment:** One commentor states that they agree with the implementation of Alternative 4 but would like to see a long-term groundwater monitoring plan to be developed and on-site waterways be monitored along with expansion of the water treatment plant.

Response: The U.S. EPA agrees with the commentor. Future investigations for groundwater and surface water will take place and current information shows that the water treatment plant will require expansion.

13. **Comment:** One commentor supports Alternative 4 but questions where the material will be taken off-site and the transportation requirements to ensure the safety of transporting the material.

Response: The U.S. EPA agrees that alternative 4 is the best alternative. The material disposed of off-site will be transported to a permitted, commercial landfill for the disposal of PCBs. Transportation of PCB contaminated material is regulated by the Department of Transportation and CBS must follow those regulations before material containing PCBs can be shipped to the disposal facility.

14. **Comment:** Many commentors stated their support for alternative 4. The issue of additional groundwater/surface water monitoring both on-site and off-site along with further water treatment and sediment was discussed by the commentors.

Response: The U.S. EPA agrees that Alternative 4 is the best balance among the nine criteria and is the most appropriate source control remedy. The commentors concern

regarding further water treatment and sediment removal is justified. The U.S. EPA will be discussing with CBS the further investigation of groundwater and surface water at and around Neal's landfill. The current water treatment plant only captures 450 gallons per minute which is only a fraction of the total flow during a storm event. Without the consideration of future expansion of the water treatment plant and sediment removal, the proposed source control remedy would not be protective of public health and the environment. The U.S. EPA plans future remedial decisions on water treatment and sediment removal.

15. **Comment:** Some commentors have concerns regarding the incineration of capacitors from Neal's landfill and the possible byproducts produced from the incineration.

Response: The capacitors containing PCB oil excavated from Neal's Landfill will be incinerated off-site in a permitted, commercial incinerator. The requirement for incineration of the capacitors is pursuant to 40 CFR 761.70 and the regulations specifically state that they must be incinerated, unless some other means is available to obtain a 99.9999 % destruction and removal efficiency. The facility that accepts the capacitors for incineration must meet the CERCLA off-site policy which ensures that waste from Superfund sites is addressed appropriately. The compliance status of the incineration facility along with the ability to meet the incineration requirements for PCBs will be checked prior to allowing the facility to incinerate any PCB containing capacitor.

16. **Comment:** One commentor stated that the pace of the cleanup has been unacceptable and a deadline must be set. The commentor states that if the deadline is not met, penalties should be assessed.

Response: The commentor is correct that the pace of the cleanup has been slow and large quantities of time have been lost determining which approach was best for the remediation of all the Consent Decree sites. Due to those delays the court has recently issued an order stating that Neal's Landfill source control must be completed by December 2000.

17. **Comment:** One commentor was concerned as to how the remediation was going to be funded.

Response: The U.S. EPA expects that CBS will fund the cost of the cleanup at Neal's Landfill. Even though it is highly unlikely, if CBS refuses to implement the ROD Amendment, then the Agency could make funds available to implement the ROD Amendment.

18. **Comment:** One commentor supported Alternative 4 but would like us to address water at the same time as the landfill is addressed.

Response: The U.S. EPA is concerned that only low flow from the springs is captured by the water treatment plant and future remedial decisions will be made regarding water treatment and sediment removal. The phased approach U.S. EPA is using has been used at many other sites and allows the Agency to determine the effectiveness of the source control remedy. If the source control reduces the amount of PCBs that are being released from the site, this will allow a smaller water treatment plant to be built. In addition, more information needs to be gathered on the groundwater and surface water at Neal's landfill and using a phased approach will allow the source control remedy to go forward without waiting until additional information is gathered on the groundwater and surface water at Neal's Landfill.

19. **Comment:** One commentor supported Alternative 4 but would like to see a cap over the entire 18-acre area since contamination was present in those locations.

Response: The U.S. EPA disagrees with the commentors issue that the entire 18-acre landfill should be capped. The areas outside the new 10-acre landfill footprint will be remediated to industrial/low occupancy PCB cleanup standards and placement of a cap over those areas is unnecessary. A 6-inch soil cover will be placed over the areas outside the landfill footprint. In addition, some areas to the north and south of the proposed 10-acre landfill footprint may be prone to backflooding during large storm events and placing a RCRA cap over these areas may jeopardize the integrity of the cap.

20. **Comment:** One commentor supported Alternative 4 but was concerned that the plan may not be carried out successfully and was concerned that high PCB material may be left behind.

Response: The U.S. EPA will be hiring contractor support to oversee the work performed by CBS at Neal's Landfill. In addition, U.S. EPA will require CBS to do verification sampling for areas outside the landfill cap that have been excavated to ensure that the cleanup is being done properly.

21. **Comment:** One commentor stated that with the limited information available and the high degree of uncertainty, it is difficult to make sound, scientifically based decisions regarding the remediation of contaminated sites located in karst terrain. The commentor states that reliance on guidance developed for, and based primarily on, simpler sites may not be appropriate for decision making in karst dominated subsurface areas due to the tremendous uncertainty that will always exist in contaminated karst areas. The commentor states that the proposed remedy is not sufficiently protective to overcome the grave uncertainties surrounding the site.

Response: The U.S. EPA disagrees with the commentor. A large quantity of information is available to make an informed decision regarding the source control operable unit remedy for Neal's Landfill. The karst terrain does complicate matters associated with the

site. Disposing off-site of the principal threat material and consolidating and managing as much of the remaining contaminated material as possible, limits the possibility of further releases. In addition, even if the entire landfill was removed off-site or contained in a landfill cell built on-site, water treatment and sediment removal likely remains necessary. Surface water, sediment and groundwater sampling will be part of long-term monitoring for the site. In the event continued or additional unacceptable releases are detected, the monitoring program will help formulate proper actions to remediate these releases. Every five years, the remedy is reevaluated through U.S. EPA's Five Year Review process to ensure that the remedy remain protective.

22. **Comment:** One commentor states that the non-ideal decisions made at this site will in the future be used as precedent to make bad decisions at other similar sites. The commentor suggests language in the decision document to make it very clear that this is a unique site with regard to location and potential exposure points and the decisions were made under a very accelerated schedule set by the court.

Response: The commentor is correct that the PCB sites in the Bloomington area are under a unique set of circumstances and the language in the ROD Amendment will reflect the circumstances.

23. **Comment:** One commentor suggests that additional costs should be evaluated and incurred. The material within the 10-acre should be temporarily stockpiled. A bottom liner and leachate collection system should be installed. The stockpile material would then be placed over the liner/leachate collection system.

Response: U.S. EPA discussed a similar proposal with CBS Corporation during negotiations. The construction of a new landfill cell at Neal's landfill was rejected as cost prohibitive due to the requirements of grouting the rock under the landfill footprint. Building a landfill cell at Bottom Road would be possible but was opposed by the governmental parties and the community. In addition, to remove the 10-acre footprint would be on the order of moving 200,000 cubic yards of landfill material prior to placement of the liner and leachate collection system. The proposed remedy for Neal's Landfill uses a 10-acre footprint that is at an elevation which is less prone to backflooding.

24. **Comment:** One commentor was concerned about the details associated with the sampling plan and that relatively clean soil mixed with highly contaminated soil could create a mix not greater than 500 ppm. The commentor hopes that an adequate plan is in place to ensure that hot spots are removed from the site.

Response: The commentor is correct that representative samples must be obtained to ensure that samples of highly contaminated material are not diluted with clean material. U.S. EPA and CBS are in the process of developing a sampling plan for the excavated

areas. The sampling plan will be discussed with the public after details have been developed.

25. **Comment:** One commentor states that the public comment process is not meaningful and is apparently done to fulfill legal requirements so that the parties can say they had a comment period. Comments are received with little or no chance that the comments will affect the decision.

Response: The U.S. EPA disagrees with the commentor. The Agency has taken, and will take, public comments into consideration consistent with the nine criteria. Public comment is one of the criteria the Agency uses to evaluate a remedy, but it is not the only criterion. The Agency has continued to meet with the public frequently to gather input on the cleanup approach. For example, the Agency took the community concerns into it's decision making regarding the local disposal of material from Neal's Landfill.

26. **Comment:** One commentor states the parties have refused to determine the nature and extent of contamination at the site and that choosing a remedy is premature.

Response: The U.S. EPA disagrees with the commentor. The remedy that the Agency is selecting is for the source control operable unit and is supported by the sampling that was completed in March/April 1998. The commentor is correct that additional information is required prior to the Agency selecting a remedy for water treatment or sediment removal. To claim that not enough information is available to make a source control remedy decision is unsupported. The Sampling and Analysis Report developed by U.S. EPA's contractor Tetra Tech contains sampling data that shows areas of contamination, as well as the site's geology. In addition to the Tetra Tech report, geophysical studies including magnetometer, topographic, air photo analysis, seismic refraction, gamma ray and caliper and radar studies have been conducted. A total of 23 wells were installed in 1982 and 1983, 53 borings completed in 1982 and 1983, and 87 shallow borings completed in 1983. A low flow dye tracing study was completed in 1990 and a high flow dye trace study was completed in 1992. A residential well user study was completed in 1985 with subsequent residential well sampling of 35 wells completed in 1986. Therefore, U.S. EPA concludes that enough information is available to select a remedial action for the source control operable unit.

27. **Comment:** A number of commentors stated that a Remedial Investigation/Feasibility Study was not completed and information presented does not characterize the site to justify the present decision.

Response: Neal's Landfill was identified prior to the implementation of the Superfund Amendments Reauthorization Act (SARA). Therefore, a RI/FS was not required. The U.S. EPA filed its action against Westinghouse in January 1983 under Section 7003 of RCRA, and Sections 106 and 107 of CERCLA. The action was brought before the

SARA Amendments to CERCLA, and that the statute was very different then. Consistent with Agency policy at the time, the action was brought to secure an order from the federal court for abatement of the threat to public health, welfare, or the environment posed by the PCBs found at the sites, as expressly provided by Section 106 of CERCLA. The Agency was prepared to go to trial over the appropriate cleanup solution for Bloomington. This approach was expressly acknowledged in the 1982 NCP at 40 CFR 300.68(c). This approach is distinguished from the Agency's approach today, under CERCLA as amended by SARA, where the Agency follows an administrative process to select a remedy first, and endorses the remedy with judicial review limited to record review under the arbitrary and capricious standard.

The absence of an RI/FS here is not unusual and is, in fact, consistent with U.S. EPA's statutory and regulatory requirements of that time. Pre-SARA CERCLA did not require the preparation of an RI/FS before making remedy decisions. Further, the 1982 NCP, which applied in this matter, was permissive regarding the need for an RI/FS. 40 CFR 300.68(f) then merely stated that an RI/FS should be done. The November 20, 1985, NCP, effective after the August 22, 1985, entry by the Court of the Consent Decree, expressly changed that provision to state that RI/FSs "shall" be undertaken as appropriate. Prior to entry of the decree, the Agency properly documented its decision regarding the remedy through enforcement decision documents, or EDDs. EDDs were the precursor to today's Record of Decision, or ROD.

Extensive public comment was conducted by the Department of Justice regarding the terms of the Consent Decree prior to its entry. The scope of public comment is explained in the entry of the order of the Court, dated August 22, 1985. Community concerns over the legality of EPA's decision making process because of a perceived lack of public input is understandable. These concerns, however, do not rise to the level of illegality, or improper action by the Agency. Indeed, the 1982 NCP provided only very limited opportunity for public participation, and was remedied in later NCPs. The 1982 NCP specified only that the Agency be sensitive to community concerns (40 CFR 300.61(c)(2). The consent decree has been the subject of several judicial attacks in the past. These attacks have all been rejected by the Courts. Indeed the Courts have, essentially, signed off on the process that led to the Consent Decree and its ultimate entry by the Federal Court.

The Administrative Record contains the functional equivalent of an RI/FS based upon past sampling data and the analysis of alternatives that was completed for the court by the parties. The nature and extent of contamination has been determined and using 40 CFR 761.61 and other Superfund guidance, the appropriate cleanup numbers have been calculated.

Finally, U.S. EPA guidance provides that EDDs are to be amended using the current ROD amendment process outlined in the current NCP. A RI/FS is not required under the

NCP for purposes of issuing a ROD amendment that changes a remedy selected in an EDD.

28. **Comment:** A number of commentors stated that the sampling has not been adequate to determine locations of PCBs hot spots. One commentor also stated that some hot spots scheduled to be excavated are smaller than areas which were not sampled in the boring program.

Response: The U.S. EPA disagrees with the commentors. Over 100 borings were placed into Neal's Landfill with most of the borings at 100 foot spacings and some at 50 foot spacings. U.S. EPA guidance on the investigation of municipal landfills states that if there are known locations of waste disposal, then the investigation should focus on those locations to determine if hot spots are present. In the case of Neal's Landfill, the Agency decided to fund sampling over the entire landfill, even if evidence did not indicate known locations of specific dumping. This was done to satisfy the citizens' concerns regarding PCB disposal at Neal's Landfill. The site is considered a municipal landfill and to assume otherwise is erroneous. The data that was gathered was used to identify hot spot areas. The intent was not to clean the entire site to industrial PCB cleanup standards. Containment through consolidation and capping are critical components to the site remedy.

29. **Comment:** One commentor states that the proposed remedy is not in compliance with the Consent Decree by which the parties are bound.

Response: The commentor is incorrect. Although the Consent Decree called for the excavation of 320,000 cubic yards of material from Neal's landfill **and** the construction of a municipal waste fired incinerator, the parties are free to change their prior agreement, as long as they all agree and the Court approves. Here the parties have agreed to a different cleanup solution for Neal's Landfill, and the Court has issued an Order of February 1, 1999, under which the work can be performed.

30. **Comment:** A number of commentors stated that other "contaminants of concern" have been ignored or overlooked or improperly investigated by the parties, and have not been incorporated into the cleanup plan. These contaminates include chlorinated benzene, dioxins, furans, dioxin like compounds, TCE, heptachlor, lead, cobalt, chloroethane, 111-trichloroethane, and vinyl chloride.

Response: The commentors are correct that sites such as Neal's Landfill, which accepted both municipal and industrial waste, contain a heterogenous mixture of material. The evidence shows that large quantities of PCBs were disposed of in Neal's Landfill and our investigation has focused on PCBs. The commentor's issue regarding formation of dioxin from burning PCBs is justified, but the sampling at Neal's Landfill has not demonstrated a dioxin problem. The Agency does not agree with the commentor that

additional sampling for other constituents is required for hot spot analysis. because PCBs continue to drive the risk at Neal's Landfill. To satisfy the commentor's issues regarding other constituents, the Agency will consider doing contract lab program compounds (volatile, semi-volatiles and metals) and dioxin and furan analysis during the verification sampling for areas outside the landfill footprint.

31. **Comment:** One commentor states that the proposed remedy fails to consider the risks posed by PCBs. Specifically the commentor discusses the risks associated with "dioxin-like PCBs.". The commentor requests PCB congener specific analysis.

Response: U.S. EPA has not made a determination or issued a policy regarding the risks associated with congener specific PCBs. The recently amended TSCA regulations do not address congener specific analysis, but do set cleanup standards for total PCB analysis using a conservative worst case approach. The U.S. EPA has followed 40 CFR 761.61 as a guide for the cleanup of Neal's Landfill.

32. **Comment:** One commentor states that the site boundaries do not include areas known to be contaminated, and that contamination exists outside the site boundaries.

Response: The commentor is correct that contamination may exist outside the current landfill boundary and even outside the fence line. During the remediation, additional sampling will occur to ensure areas outside the landfill cap meet the cleanup criteria.

33. **Comment:** One commentor states that Neal's Landfill was not operated as a sanitary or municipal waste site but was operated as an industrial dump.

Response: The U.S. EPA disagrees with the commentor. The data from the investigation in March/April 1998 and recently completed trenching show that large quantities of municipal waste were deposited in Neal's Landfill. In addition, Mr. Neal had a permit from the State to accept municipal waste. Neal's Landfill is like many other Superfund landfills where a mix of industrial and municipal wastes were disposed of throughout the site.

34. **Comment:** One commentor states that the presumptive remedy guidance does not apply to the site remedy and was specifically rejected and is superseded by site specific analysis and precluded by the Consent Decree.

Response: The commentor is incorrect in his assumption that the site remedy is precluded by the Consent Decree. The operating principals developed in 1994 are guiding the parties as to new remedies since the incineration remedy was not implemented. Although the Consent Decree called for the excavation of 320,000 cubic yards of material from Neal's landfill **and** the construction of a municipal waste fired incinerator, the parties are free to change their prior agreement, as long as they all agree

and the Court approves. Here the parties have agreed to a different cleanup solution for Neal's Landfill, and the Court has issued an Order of February 1, 1999, under which the work can be performed.

The site-specific analysis that was completed prior to signing of the Consent Decree in 1984 did not have the benefit of the large amount of sampling that was completed in March/April 1998. A site specific investigation was completed with over 100 borings placed into Neal's Landfill and based upon the data gathered from that investigation, the hot spot approach was formulated. The recommendations completed prior to the signing of the Consent Decree in 1984 did not have the history of other sites similar to Neal's Landfill. For landfills that contain a large volume of material, like Neal's Landfill, hot spot removal and containment of low-level threat waste is appropriate and has been implemented at many other Superfund sites. Neal's Landfill fits the criteria of many landfills on the Superfund list, where both municipal and industrial waste were disposed of throughout the life of the facility. By doing source control with the subsequent evaluation of water treatment and sediment removal, a remedy that is protective of public health and the environment will be implemented.

35. **Comment:** One commentor states that the remedy fails to comply with law and regulations, and that the information that U.S. EPA submitted to the court against "piggybacking" prevents the proposed remedy from being implemented.

Response: The commentor is incorrect in his analysis. First, U.S. EPA in its discussions with CBS, and in the submittal of the technical briefs to the Court, was arguing against CBS bringing the contents of all of the other the Consent Decree sites to Neal's Landfill for disposal. The placement of waste from the other Consent Decree sites at Neal's Landfill, referred to as "piggybacking", would have required a permit and would not have fit the definition of "consolidation" in the National Contingency Plan (NCP). Pursuant to the NCP, consolidation is allowed if the areas of contamination that are being consolidated are in very close proximity. On the other hand, where Superfund wastes are disposed of "off-site," the wastes can only be disposed of at permitted (or legally approved, as in TSCA) facilities that are in compliance with U.S. EPA's off-site policy. U.S. EPA's arguments to the Court stated that the Consent Decree sites were not in close proximity to Neal's Landfill, that the materials proposed for Neal's Landfill were coming from "off-site,"and that a permitted, RCRA/TSCA landfill would first have to be built at Neal's Landfill in order to satisfy statutory and regulatory requirements. The proposed consolidation of Neal's Landfill material to the center portion of the Neal's Landfill is allowed under the NCP and does not require a permit. Consolidation has been implemented at many other Superfund sites. The commentor should not equate on-site consolidation with piggybacking.

The commentor is also incorrect regarding the proposed remedy being in violation of the regulations. The commentor's statement that the remedy does not meet the siting,

construction, and operation of a landfill under TSCA and RCRA is correct if the Agency were constructing a new landfill. Here, the source control remedy does not call for the construction of a new landfill. Instead, a RCRA Subtitle C compliant cap will be built over the reduced landfill footprint. The ARARs for TSCA and RCRA regarding siting, construction, and operation are applied to the construction of a new landfill.

36. **Comment:** One commentor states that a risk assessment was not completed and that constituents other than PCBs were not evaluated.

Response: U.S. EPA followed 40 CFR 761.61 for determining the cleanup levels outside the landfill cap area. Therefore, a site specific risk assessment was not required.. The landfill material was not evaluated as an exposure pathway, because individuals would not be exposed to material under the landfill cap. U.S. EPA will consider sampling for other constituents in addition to PCBs during the verification sampling. If other constituents are discovered during the verification sampling, they will be remediated to either industrial or residential standards, depending upon if they are inside or outside the fence.

37 **Comment:** One commentor indicates that ARARs have not been listed or considered. The commentor states the 1985 Consent Decree and the endangered species act, specifically in relation to the Indiana bats have not been considered.

Response: The commentor is incorrect. The Consent Decree does not fall within the statutory and regulatory definitions of "ARAR." The terms of the Consent Decree, however, have been followed and the new remedy proposed after the incinerator was not implemented meets the terms of the Consent Decree and CERCLA. The endangered species act is not an ARAR, because there is no evidence of Indiana bats at Neal's Landfill. Areas outside the landfill cap will have a soil cover to protect ecological receptors and the landfill cap will prevent ecological receptors from coming into contact with the PCB material. Future decisions regarding water treatment and sediment removal will be presented by the Agency to address the continuing releases of PCBs into the environment.

38. **Comment:** One commentor states the aims of the Consent Decree have not been met, because any alternative considered must achieve a level of removal and destruction of PCBs that the incineration remedy required.

Response: The commentor is incorrect. Although the Consent Decree called for the excavation of 320,000 cubic yards of material from Neal's landfill **and** the construction of a municipal waste fired incinerator, the parties are free to change their prior agreement, as long as they all agree and the Court approves. Here the parties have agreed to a different cleanup solution for Neal's Landfill, and the Court has issued an Order of February 1, 1999, under which the work can be performed. When the incineration

remedy was not implemented, new alternatives were evaluated. The new remedy must be protective of public health and the environment and does not have to meet the 99.9999 % destruction and removal efficiency that is required for the incineration of PCBs. The source control remedy operable unit will be s:mplemented with the evaluation of further water treatment and sediment removal.

39 **Comment:** One commentor states that the remedy selected ignores the dangers the site poses. Fractured limestone geology containment remedies are not feasible at the sites and this conclusion was the consensus of the governmental parties prior to the signing of the Consent Decree.

Response: The source control remedy does not ignore the risk associated with PCBs. Moving the material to the new 10-acre footprint addresses areas subjected to backflooding. Additional information has been developed since the decisions that were made prior to the 1984 Consent Decree. Source control in conjunction with water treatment and sediment removal will produce a remedy that is protective of public health and the environment.

40 **Comment:** A number of commentors stated that the 500 ppm cleanup level is too high.

Response: The commentors fail to recognize that the 500 ppm cleanup level is for material that will be placed under a RCRA Subtitle C compliant cap. Areas within the fence line of the site will be remediated to industrial PCB cleanup standards as described in 40 CFR 761.61. Areas outside the fence will be remediated to residential PCB cleanup standards as described in 40 CFR 761.61. The 500 ppm principal threat value for PCBs is based on U.S. EPA guidance and is consistent with other remedies at other Superfund landfill sites. In addition, please see response to comment 10.

41. **Comment:** One commentor states that it is premature to put forth a remedy without evaluating the water situation.

Response: The commentor is incorrect. The Agency puts forth operable unit remedies frequently in situations like Neal's Landfill. Completing a source control remedy prior to implementing a groundwater remedy allows for additional water and sediment studies to continue and source control can be addressed without delay.

42. **Comment:** One commentor states that subsidence as described in EPA's briefs to the court precludes the proposed remedy.

Response: The commentor is incorrect. The U.S. EPA did discuss subsidence in its briefs with the court in relation to bringing PCB contaminated material from all of the other Consent Decree sites for disposal at Neal's Landfill. In the design of the proposed remedy, a stability analysis will be completed by CBS and if any subsidence occurs in the

future. CBS will be required to address the subsidence.

43: **Comment:** One commentor states the preferred Alternative 4 violates the Consent Decree negotiated by the parties and lodged with the court which states that the extent of removal of contamination will not be reduced, regardless of whether incineration or a later chosen treatment option is used.

Response: The commentor is incorrect. Although the Consent Decree called for the excavation of 320,000 cubic yards of material from Neal's landfill **and** the construction of a municipal waste fired incinerator, the parties are free to change their prior agreement, as long as they all agree and the Court approves. Here the parties have agreed to a different cleanup solution for Neal's Landfill, and the Court has issued an Order of February 1, 1999, under which the work can be performed.

44. **Comment:** One commentor states that the Consent Decree should be included as an ARAR.

Response: The Consent Decree is not a promulgated law or regulation. Accordingly, it does not fall within the statutory or regulatory definition of an ARAR.

45. **Comment:** One commentor states that the preferred Alternative 4 violates assurances by the governmental parties to the citizens of Bloomington that any later adopted treatment remedy other than incineration would not reduce the level of contamination removal from the site.

Response: The new remedies for all the Consent Decree sites must be protective of public health and the environment and no guarantees were given regarding meeting the destruction and removal efficiency of 99.9999% for PCBs that incineration would have accomplished. The parties are free to revisit the terms of the prior agreement, and if all of the parties agree, and the Court approves, then the terms of the Consent Decree can be changed.

46. **Comment:** One commentor states the sampling done at the site in 100 foot grids is insufficient and inadequate to determine the extent of contamination or to determine "hot spots."

Response: The commentor is incorrect. Neal's Landfill is classified as a municipal landfill that accepted both municipal and industrial waste like many landfills created before the implementation of RCRA. Normally the investigation as described in U.S. EPA guidance and investigations completed at many other landfill sites focuses the investigation in known areas of contamination. The Agency funded the large boring program when CBS refused to do only a limited investigation. By placing borings at 100 foot spacings allowed the Agency to determine hot spots. The removal of some material

along with consolidation and placing a RCRA cap over the final landfill footprint will result in a protective source control remedy.

47. **Comment:** One commentor states that the preferred remedy leaves substantial amounts of PCB contamination of unknown levels at Neal's Landfill.

Response: The commentor is partially correct that some areas at Neal's Landfill may contain high levels of contamination. The placement of a landfill cap over the final footprint will reduce the risk of migration, especially considering that the final footprint will be less prone to backflooding.

48. **Comment:** One commentor states groundwater has not been addressed.

Response: Future investigations and decisions will be made regarding groundwater and this proposal only addresses source control.

49. **Comment:** One commentor states the site is over karst and fractured limestone geology and that changes in karst over time necessitates that all contaminated material must be removed.

Response: The Agency disagrees with the commentor. Hot spots removal, consolidating areas that are suspectable to backflooding, and constructing a landfill cap will reduce releases from the site, even if the site is in karst terrain. The commentor is correct that a monitoring program must be implemented to monitor the site over time to ensure the remedy is effective. Source control along with water treatment and sediment removal will produce a remedy that is protective of public health and the environment.

50. **Comment:** One commentor states that the remedy proposed is essentially the same as the piggyback remedy that the Agency argued against to the court in February 1998.

Response: The commentor is incorrect. In it's court briefs, the Agency was arguing against all the PCB contaminated material from the other five Consent Decree sites being disposed of at Neal's Landfill. Our discussion with the court was also in opposition to construction of a local disposal facility at Bottom Road. The NCP allows consolidation of material within the area of contamination at a site, and this is being implemented at Neal's Landfill. U.S. EPA arguments to the court regarding other matters does not preclude the selected source control remedy.

51. **Comment:** One commentor states Neal's Landfill was never a landfill but was a private dump and, therefore, all guidance and policies referencing cleanups for landfills are inapplicable.

Response: The commentor is incorrect. Neal's Landfill received a permit from the State

to accept municipal waste and large quantities of both municipal and industrial waste were deposited at the site. U.S. EPA guidance and policies regarding landfills is applicable. The large volume of materials, along with the mix of wastes, classifies the site as a landfill.

52. **Comment:** One commentor states that dioxin was not considered a contaminant of concern, even though daily burning occurred at the site.

Response: The commentor is correct that burning occurred at the site but the limited dioxin sampling that was completed at the site shows that PCBs are still driving the risk. CBS has agreed to complete PCB sampling for verification sampling, and the Agency will consider dioxin and furan sampling for areas outside the landfill cap.

53. **Comment:** One commentor states that other contaminants of concern were not included in the remedy decision.

Response: The commentor is correct that at sites like Neal's Landfill many other constituents may be present. PCBs, however, are driving the risk at this site. U.S. EPA nevertheless will consider sampling for other constituents during the verification sampling.

54. **Comment:** One commentor states that the consideration of alternatives is deficient in that complete excavation was not considered to a 1 ppm or less residual contamination.

Response: The commentor is incorrect. To assume that a municipal landfill that was used as an industrial disposal facility that should be classified for cleanup standard purposes as a residential property ignores the previous land use. The site is considered "industrial" and the Agency included total excavation to industrial standards (estimated to be 320,000 cubic yards).

55. **Comment:** One commentor states the site should be considered residential and not industrial, because it is surrounded by farms and residences.

Response: The U.S. EPA disagrees with the commentor. The site was used as an industrial facility and to remediate a landfill to residential standards does not follow U.S. EPA guidance or policy. The areas outside the fence line will be remediated to residential standards because residences could be developed outside the fence line in the future. Within the fence line, the landfill cap will preclude development and deed restrictions will be in place to prevent development.

56. **Comment:** One commentor states that landfilling does not reduce the volume, toxicity or mobility of PCBs and should not be considered as a remedy. The commentor also states that EPA's published reports state that all landfills leak and eventually supports the

necessity that landfills not be used for the disposal of persistent organic pollutants such as PCBs.

Response: The commentor is incorrect. The EPA has issued permits for many landfills that accept organic pollutants like PCBs. CERCLA does favor remedies which reduce the volume, toxicity or mobility of contaminants. In this remedy capacitors will be incinerated off-site. With such a large total volume of materials and considering the site was a municipal landfill that accepted both industrial and municipal waste, it is not practicable to treat such a large volume of material.

57. **Comment:** A number of commentors stated that the alternatives reviewed are deficient in that they don't include vaulting as a remedy.

Response: Vaulting was not considered, because vaulting would force local disposal at the Bottom Road property (which CBS owns). Vaulting a site the size of Neal's Landfill in a building would require four buildings, each of which would be approximately 400 feet by 400 feet and 16 feet high (the interim storage facility at Winston Thomas is 120 feet by 300 feet and 41 feet high). A more practical scenario would be local disposal at Bottom Road in a TSCA landfill. However, Agency does not support local disposal at Bottom Road or any other location in Bloomington, Indiana. In addition, vaulting would be more expensive compared to constructing a permitted chemical waste landfill at Bottom Road.

58. **Comment:** One commentor states that the alternatives reviewed are deficient in that they don't include destruction treatment options such as Ecologic thermal treatment.

Response: The commentor is incorrect. Off-site incineration will be used for the capacitors and PCB oil discovered during the excavation. Ecologic thermal treatment was not considered due to the cost of eco-logic compared to on-site incineration along with the difficult deadline the court has required.

59. **Comment:** One commentor states that cost was the only criteria used as a basis for determining the preferred alternative and that reliance on cost has worked to the detriment of public health and safety.

Response: The commentor is incorrect. Cost was used as one of the nine criteria but was not considered the only criteria. The hot spot removal, consolidation, and capping remedy will limit the releases of PCBs. With subsequent evaluation of additional water treatment and sediment removal, a protective remedy is being implemented. The commentor assumes that cost is the only factor but moving a landfill to another community along with avoiding local disposal figured into the decision making.

60. **Comment:** One commentor states that EPA's proposal is CBS's piggyback proposal

thinly disguised and that Lemon Lane material will be disposed of at Neal's Landfill.

Response: The commentor is incorrect. The piggyback proposal CBS put forth is not the hot spot, consolidation, and capping remedy selected by U.S. EPA. The piggyback proposal considered taking all the PCB contaminated material from all of the other the Consent Decree sites and placing those materials on top of Neal's Landfill. This is not the same as consolidating areas within Neal's Landfill at Neal's Landfill. See response to comment 50.

61. **Comment:** One commentor states that comments from Monroe County, specifically Steve Creech, Dennis Williamson and George Hegeman which state it is unacceptable for partial cleanups and the commentor would like those comments incorporated into their comments.

Response: Monroe County has not objected to the remedy proposed for Neal's Landfill during out discussions with the court. The County does not have to support the proposed remedy but the County has given the impression to the court that they support the proposed remedy.

62. **Comment:** One commentor states that Alternatives 1 through 3 are inappropriate because they have been rejected by the parties and are only included to make alternative 4 look good.

Response: The U.S. EPA disagrees with the commentor. Alternative 1, the No Action alternative was used as a baseline if no further activities were implemented at the site. Alternatives 2 and 3 are considered protective but not as protective as Alternative 4. Alternatives 2 and 3 were not evaluated just to make Alternative 4 viable but are alternatives that which could have been implemented.

63. **Comment:** One commentor states the community does not support partial removals at this or any site.

Response: The commentor is incorrect. More public comments were received in support of the remedy than opposed to the remedy. The Agency is aware that some individuals in the community do not support the proposed remedy for Neal's Landfill but the Agency is putting forth a remedy that is protective of public health and the environment.

64. **Comment:** One commentor states that U.S. EPA has conspired with the other governmental parties in launching a disinformation campaign to the media and the public of Bloomington to disguise the actual risks from the sites and to disguise the extent to which the cleanup standards are being eroded in negotiations. The review of the alternatives is part of that disinformation campaign.

Response: The commentor is incorrect. The selected remedy will be protective of public health and the environment. No disinformation campaign is being put forth by the governmental parties.

65. **Comment:** One commentor states that the sampling method used do not show statistical confidence that the waste has been defined properly. In addition the commentor states that the method used apparently does not stand up to statistical scrutiny and raises very serious questions about the characterization of hot spots.

Response: The U.S. EPA disagrees with the commentor. The statistical issues identified in the comments revolve around (1) the number of borings drilled to characterize PCB hot spots and (2) the lack of fit of high-concentration PCB data to log-normal distribution. According to the comment, 1,000 3-centimeter borings per acre of landfill would be needed to have a 90 percent probability of finding a circular, 1-meter object. In addition, the lack of fit of high-concentration PCB data is interpreted to imply that samples are not representative of the landfill waste and that the sampling was biased.

The boring and sampling program for the site both meets and exceeds the U.S. EPA guidance for conducting investigations at municipal landfill sites, which requires that borings be placed outside a landfill to assess impacts on groundwater quality. The guidance presumes that landfill capping will be the selected source remedy. The objective of the sampling performed at the Neal's Landfill site in 1998 was to assess whether hot spots exist in relatively uncontaminated areas of the landfill, and not to fully characterize PCB contamination, or define the overall average PCB concentration, or define the average concentration variations. The objective of the sampling was met by the program.

When a site of this nature and size is investigated, more than statistical considerations enter into setting objectives and planning field work. The boring and sampling program was carefully planned to incorporate findings of previous investigations. Knowledge of historical landfill disposal practices, examination of aerial photographs, and consideration of geophysical studies conducted prior to 1998 were more important in locating borings that were likely to encounter hot spots than was consideration of statistics. The comments suggest a massive program to fully characterize the landfill waste. However, the comments do not explain why identifying a circular, 1-meter object is of any significance, nor do they explain the implications to public health and the environment if such an object goes undetected. One might raise the same issue with regard to a 0.5-meter or smaller circular object, implying that several thousands of borings would be needed to fully characterize the waste. What is important is that the boring program adequately identified hot spots that will be excavated in 1999. During this excavation, visible PCB-contaminated materials, including oil layers and capacitor parts, will be removed beyond the limits of excavation, as necessary. The excavation limits are illustrated in the proposed plan.

Moreover, the lack of fit of high-concentration data to the log-normal distribution does not mean that the sampling approach was biased or that the data is not representative of the waste. The lack of fit merely means that there are two distributions for the samples collected: one that describes the low-concentration samples and one that describes the high-concentration samples. This fact suggests the presence of hot spots whose patterns were evident during evaluation of the data collected and whose extent is delineated in the proposed plan.

66. **Comment:** One commentor states that flooding and draining of conduits beneath the landfill might reintroduce PCBs into the groundwater, and that a potential collapse within the proposed landfill footprint caused by undermining of soil, rock, or waste by underground streams could occur. This could result in discharges of PCBs at new locations not being remediated.

Response: During the 1998 field investigation, ten piezometers were installed in landfill areas where water was encountered during drilling. The piezometers were installed at the base of the waste to monitor fluctuations in water levels. The piezometers were surveyed and monitored from May through October 1998. Three of these piezometers (PZ 24, PZ 61, and PZ 93) lie within the proposed consolidation area and proposed landfill footprint; the remaining seven piezometers lie outside the proposed landfill footprint. Figures 1 through 3 present the water levels in PZ 24, PZ 61, and PZ 93 as well as in monitoring well (MW) EPA 5A from May through October 1998. Table 1 shows historical (1993 and 1994) high groundwater elevations in monitoring wells in the vicinity of the landfill, including MW EPA 5A. MW EPA 5A is believed to tap a conduit underneath the landfill because its hydrograph closely resembles the hydrograph of CBS Corporation's gauging station at Conard Branch north of the landfill. Figures 1 through 3 also show important elevation data for the bottom of the waste and the top of the bedrock at the three piezometer locations. The data in Figures 1 through 3 and Table 1 indicate that, based on existing information, seasonally high groundwater might not contact landfill waste in the proposed consolidation area. The data do not imply that groundwater will never rise as high as the bottom of the waste; however, the data suggest that the likelihood of this occurrence is low because the 1993 water elevation data is for the wettest year of record in the twentieth century.

The remedial design for the proposed source control remedy will address the stability of the landfill, including the karst stability of the proposed consolidation area. The Resource Conservation and Recovery Act cap and surface water diversion controls to be implemented as part of the remedy will be designed to minimize infiltration of direct precipitation and surface water runoff and therefore the potential for a collapse of soil or waste above the bedrock. In addition, the long-term landfill operation and maintenance activities and the performance monitoring of the source control remedy will include monitoring of groundwater, surface water, and sediment in springs near the landfill and Richland Creek to assess whether new PCB discharge points are created and to evaluate

the quality of surface water and sediment over time. This monitoring will also support identification and evaluation of appropriate corrective measures, including spring water treatment, in the event that PCB concentrations in these media increase or a collapse occurs in the future.

67. **Comment:** One commentor states that the Bloomington community would support other treatment options instead of incineration that would reduce the toxicity, volume or mobility of the contaminated waste.

Response: The Agency is implementing treatment for capacitors and PCB containing oil discovered during the excavation through off-site incineration. Based upon the difficult schedule proposed by the court and the fact that incineration would be a viable treatment option for this type of heterogenous material along with the site being classified as a municipal landfill, other treatment options were not evaluated.

68. **Comment:** A number of commentors stated that intermediate excavation criteria should have been presented to bridge the gap between alternatives 3 and 5. The commentor states that a stronger analysis would have evaluated excavation from 25 ppm to 500 ppm.

Response: The Agency agrees that range of alternatives from excavating PCBs from 25 ppm to 500 ppm could have been evaluated. The U.S. EPA PCB guidance clearly discusses the 500 ppm value as a principal threat number and CBS Corporation was not willing to discuss lower values. The Agency then took the approach that instead of basing excavation on just analytical data, we would include consolidation for areas suspected of backflooding. This would essentially remediate areas to 25 ppm on average and even though a majority of the material would be consolidated instead of removed off-site, the rock elevation in the proposed consolidation area relative to the high groundwater elevation makes it unlikely that material would become saturated and migrate off-site.

69. **Comment:** A number of commentors stated the cost difference between Alternatives 4 and 5 are so drastic that it is misleading and the reader automatically disregards Alternative 5 as excessive.

Response: In most instances in the development of alternatives, the Agency would not evaluate the complete excavation of a landfill as a viable option. In the evaluation of Neal's Landfill, we included the complete excavation because many citizens wanted it evaluated. Even if we evaluated some intermediate PCB concentration such as 300 ppm, the cost difference still would have been great because of the large quantity of material that still would have been contained.

70. **Comment:** One commentor states that consolidating PCB material under 500 ppm is unacceptable because no long-term data exists that shows that the waste will not be

saturated during periods of high flow. In addition, no barrier is included o stop PCBs from leaking into the soil and rock beneath the waste. Further, it is impossible to prevent a sinkhole from forming under the proposed consolidation area. Once PCBs enter the complicated karst groundwater system, it will be extremely difficult to capture them.

Response: The Agency disagrees with the commentor. First, PCBs have entered the complicated karst system for over 30 years and it is U.S. EPA's opinion that water treatment will be required, even if Alternative 5 was implemented. Consolidation is appropriate in these circumstances. Because the consolidation area is high relative to high groundwater elevation and because the cap will minimize infiltration in the waste, new sinkhole formation is unlikely as sinkhole formation requires the presence of water.

71. **Comment:** One commentor states that the proposed alternative should not be evaluated independent from the post excavation sampling plan and the long term monitoring plan. The commentor states the extent of contamination has not been delineated in several areas so a rigorous post excavation sampling plan and commitment to extend the excavation area to meet removal objectives is needed. Therefore, the sampling and extended removal plan should be incorporated in the remedy proposal.

Response: The Agency disagrees with the commentor. A post-excavation sampling plan and long term monitoring plan will be developed in the design phase. It is unusual to have these type of documents developed at the ROD phase. The cleanup standards have been developed pursuant to 40 CFR 761.61 and post excavation sampling and long-term monitoring will meet all Agency requirements. The Agency will share the documents with the public once they become available.

72. **Comment:** One commentor states that EPA must present convincing evidence that when groundwater contamination occurs it will be promptly detected, captured, and treated and the money to build and operate a water treatment plants in the vicinity of Neal's Landfill should be placed in escrow.

Response: The Agency will be putting forth an interim groundwater remedy and eventually a permanent groundwater remedy. CBS has financial assurance requirements within the Consent Decree.

73: **Comment:** One commentor states that EPA's selection of alternatives ignores basic facts and evidence on which decision making should be based - Neal's Landfill is a grossly contaminated superfund site on the NPL over an aquifer with karst characteristics with which source materials have been in contact. The commentor states that numerous sinkholes exist in the site area and are believed to exist beneath the landfill.

Response: The commentor is correct that a number of sinkholes have been mapped surrounding Neal's Landfill. Aerial photographs were reviewed for the area associated

with the 10-acre footprint prior to construction of the landfill. No sinkholes were observed. Asserting that sinkholes exist under the proposed 10-acre footprint is unsupported speculation. In addition, the site has had source material in contact with groundwater for over 30 years The proposed remedy will remove large areas prone to backflooding and by placing a RCRA Subtitle C compliant cap over the site will limit off-site migration. With the addition of water treatment and sediment removal a remedy will be put forth that is protective of public health and the environment.

74. **Comment:** One commentor states that the investigation completed by Tetra Tech should have allowed sampling to proceed to whatever depth where the need to do so was indicated. The commentor also states it was difficult to tell the difference between native material and fill.

Response: The sampling program was intended to avoid as much as possible the puncturing of the native clay layer under the fill, which could provide additional migration pathways. The remedy will excavate in the southeast and north of the slope areas into the native material and verification sampling will occur. Therefore the commentors concern that the depth was not characterized will be addressed in the excavation. The commentor is incorrect in the statement that the drilling program had a difficult time telling the difference between native material and fill. The drillers could not predict to the exact depth when the native clay material would be present but once the core was removed, it was very easy to tell the difference between the native clay and fill. The commentor is referred to the boring logs in the Appendices of the Tetra Tech report.

75. **Comment:** One commentor states the landfill boundaries are not accurately defined and PCB contamination exists outside the boundaries.

Response: The Agency agrees with the commentor and verification sampling will occur for areas outside the landfill footprint.

76. **Comment:** One commentor states that the Tetra Tech report shows no consistent trends of concentration with depth. The concept of using hot spot identification criteria of 500 ppm for dry areas and 50 ppm for wet areas, while leaving the rest of the landfill on site is arbitrary and capricious. The need exists for removing all of the contaminated material off-site from the karst system as the Consent Decree found to be applicable, relevant and appropriate.

Response: The U.S. EPA disagrees with the commentor. The Agency has used both PCB and municipal landfill guidance and the sampling data to determine an appropriate remedy. The areas outside the landfill footprint will be remediated to an industrial PCB cleanup standard of 25 ppm on average. To claim that the consent Decree required the complete excavation of PCB contaminated material without considering the incinerator is misguided. The remedy put forth by the Agency is consistent with other landfill remedies

and by reducing the landfill footprint to 10-acres will make the waste less suspectable to backflooding.

77. **Comment:** One commentor states that the State of Indiana prohibits siting of solid waste landfills in karst topography.

Response: The commentor is correct that Indiana prohibits siting of new landfills in karst terrain but Neal's Landfill was sited before the regulation came into effect. Therefore, the regulation does not apply to Neal's landfill. If the remedy called for the construction of a new landfill for the Neal's landfill material, then the regulation would apply. The Bottom Road location was purchased by CBS because it contained a suitable location for a landfill.

78. **Comment:** One commentor states that Neal's Landfill should be totally excavated to background level, bedrock where warranted and storage of waste material in leakproof, earthquake proof vaults above ground, with the capacitors stored separately. The commentor claims precedents to vaulting including the MGM PCB site, a site in Jacksonville Arkansas and the ISF in Bloomington.

Response: The Agency disagrees with the commentor. The precedent is for landfilling the material (see Region V remedy summary in the Administrative Record). Vaulting of the Neal's Landfill material would require the use of Bottom Road. In addition, water treatment would still be required since PCB contamination has migrated into the karst conduits and even with total removal, water treatment will still be required

79. **Comment:** A number of commentors stated that they preferred Alternative 5 since the remedy is more protective than Alternative 4.

Response: The commentors are correct that Alternative 5 is more protective than Alterative 4 since it removes the entire landfill to an off-site permitted landfill in Michigan. The high cost along with the difficulty in implementing Alternative 5 without using local disposal makes Alternative 4 attractive. Alternative 4 through the use of a RCRA Subtitle C compliant cap and consolidation will limit the possibility of PCB migration form the site. In addition, the evaluation of further water treatment and sediment removal will produce a remedy that is protective of public health and the environment.

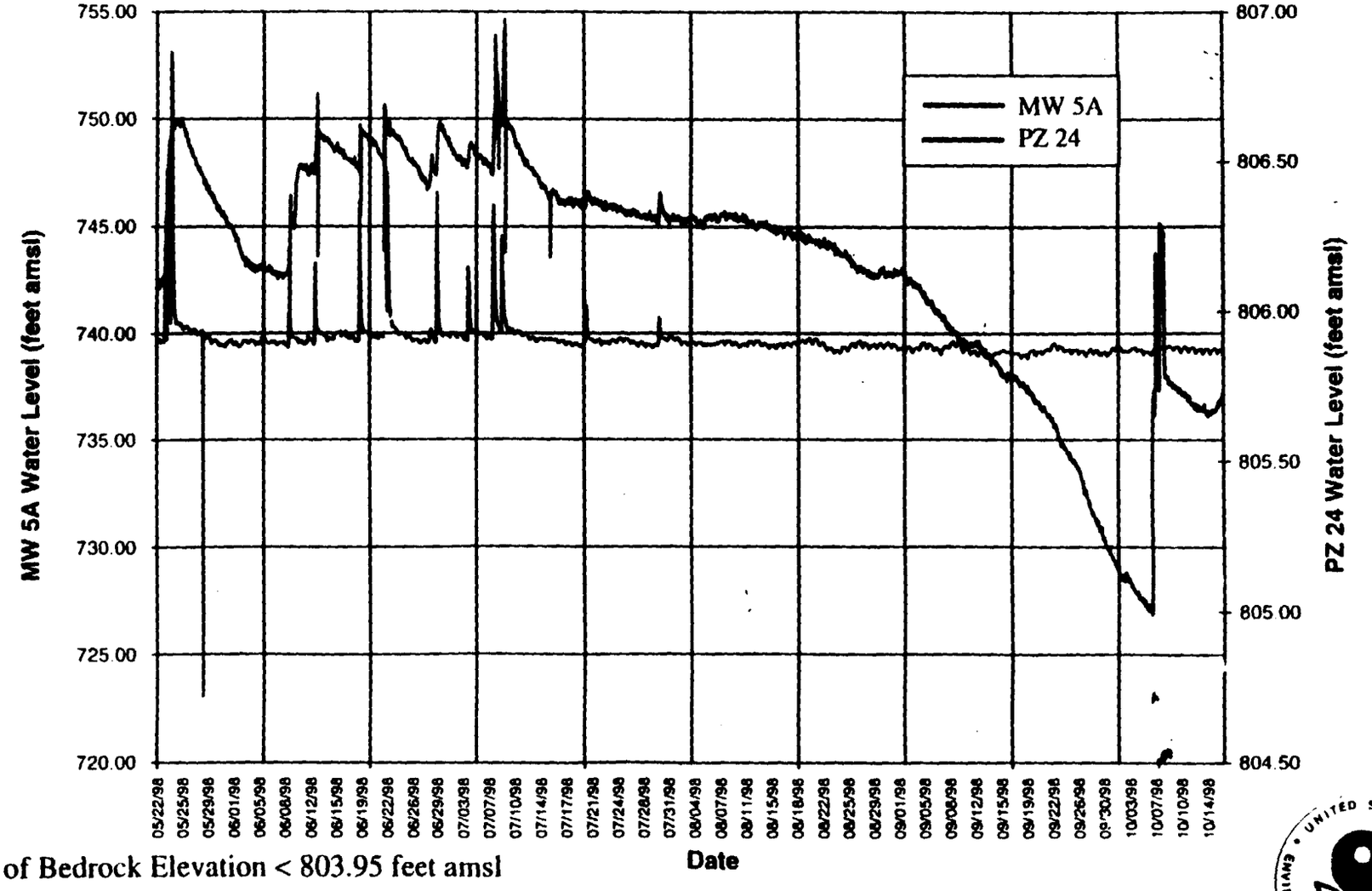
TABLE 1

MAXIMUM WATER LEVELS AT NEAL'S LANDFILL

Monitoring Well	Maximum Water Levels (feet above mean sea level)	
	November 1993	April 1994
EPA 2A	755.2	
EPA 3A		762.3
EPA 4A		744.1
EPA 5A	764.2	782.1
EPA 5S	751.8	
EPA 5SS	753.2	
EPA 6A		754.3
EPA 8A		739.5
EPA 9A		739.1
EPA 10S	773.3	768.9
EPA 11		769.2
MW-3	758.5	
MW-4	772.6	767.7
MW-5		763.2

FIGURE 1

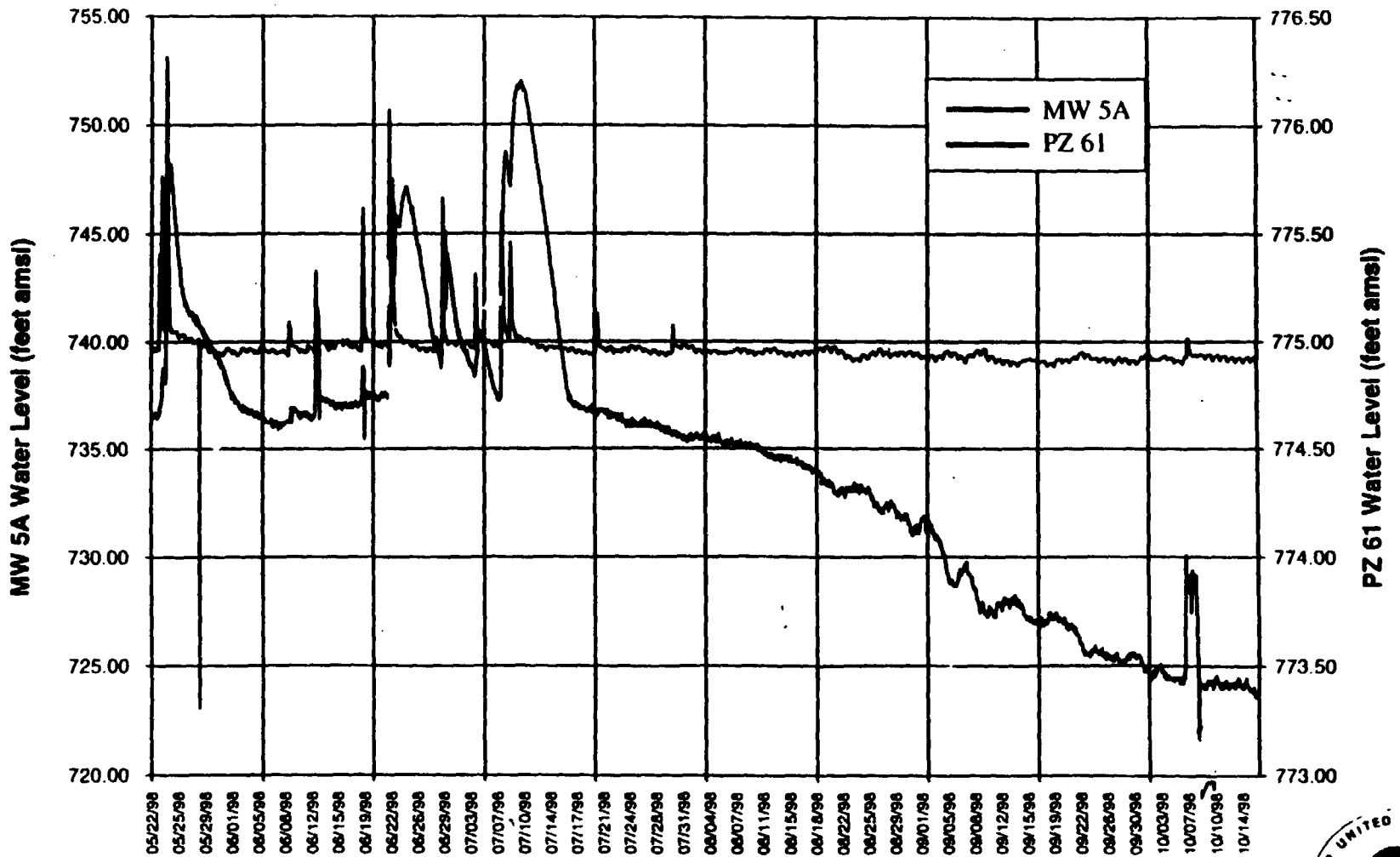
Neal's Landfill MW EPA 5A & Piezometer 24



Top of Bedrock Elevation < 803.95 feet amsl
Bottom of Waste Elevation = 804.15 feet amsl
amsl = above mean sea level

FIGURE 2

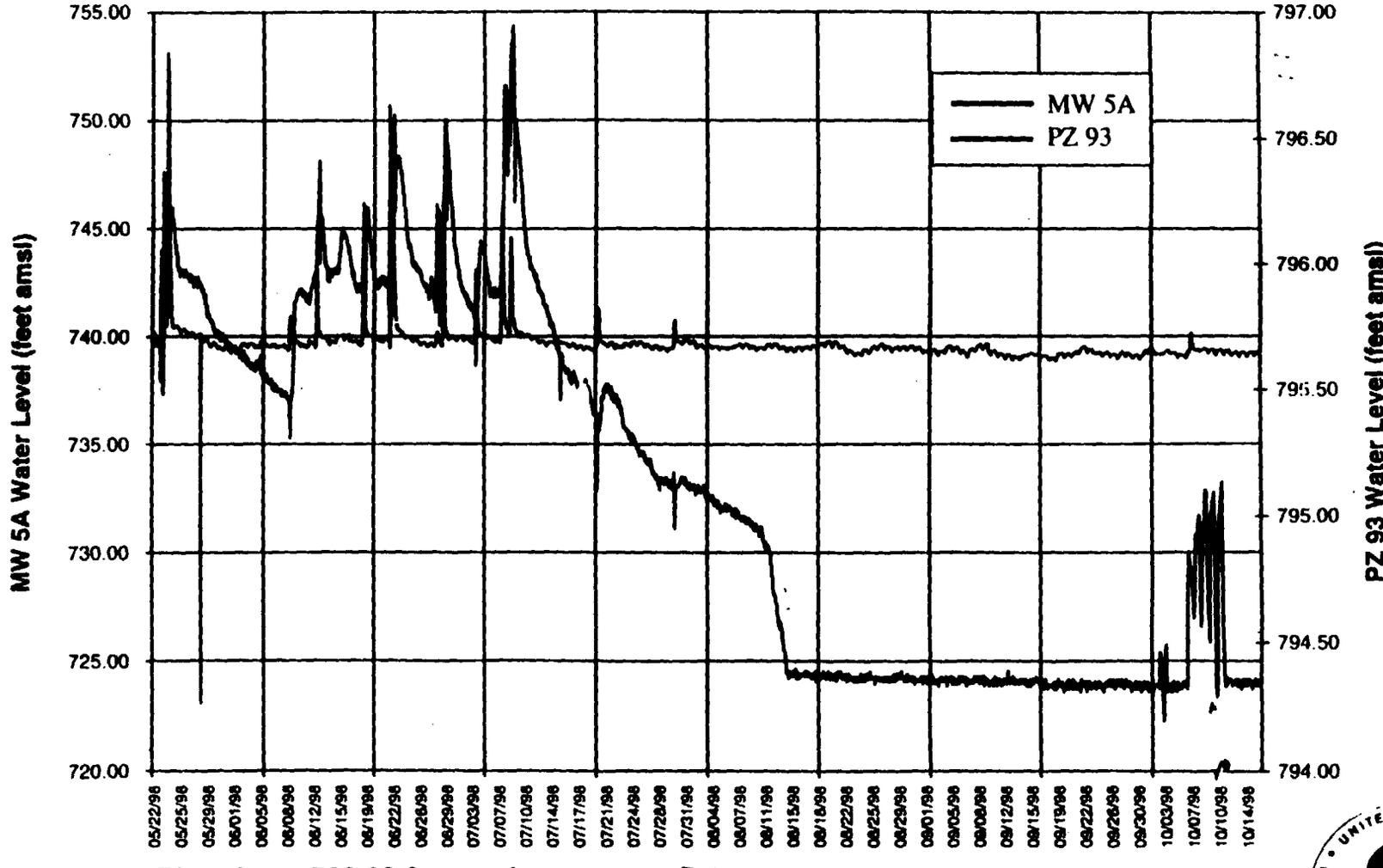
Neal's Landfill MW EPA 5A & Piezometer 61



Top of Bedrock Elevation < 770.42 feet amsl
Bottom of Waste Elevation = 771.92 feet amsl
amsl = above mean sea level

FIGURE 3

Neal's Landfill MW EPA 5A & Piezometer 93



Top of Bedrock Elevation < 788.08 feet amsl
Bottom of Waste Elevation = 790.08 feet amsl
amsl = above mean sea level