EPA Superfund
Record of Decision:

MIDLAND PRODUCTS
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OLA/BIRTA, AR
03/24/1988
EPA is directed to look at alternative treatment technologies, the final selection is a remedial activity which is protective of human health and the environment. "Remedial actions in which treatment which permanently and significantly reduces the volume, toxicity, or mobility of the hazardous substance as a principal element, are to be preferred over remedial actions not involving such treatment. The offsite transport and disposal of hazardous substances or contaminated materials without such treatment should be the least favored alternative remedial action where practicable treatment technologies are available."

These factors, as well as other criteria used during the evaluation of alternatives, are discussed below:

1. Consistency with other environmental laws - compliance with ARARS

In determining appropriate remedial actions at Superfund sites, consideration must be given to the requirements of the various federal and state environmental laws, in addition to CERCLA as amended by SARA. Primary consideration is given to attaining applicable or relevant and appropriate federal and state public health and environmental regulations and standards, commonly referred to as ARARS (Applicable or Relevant and Appropriate Regulations). While many state and federal laws may not be legally applicable to the proposed remedy, they must be evaluated to determine if the whole, or a portion, are relevant and appropriate.

2. Reduction of toxicity, mobility or volume

The degree to which alternatives employ treatment that reduces toxicity, mobility, or volume must also be assessed. Relevant factors are:

- The treatment processes the remedies employ and materials they will treat;
- The amount of hazardous materials that will be destroyed or treated;
- The degree of expected reduction in toxicity, mobility, or volume;
- The residuals that will remain following treatment, considering the persistence, toxicity, mobility, and propensity for bioaccumulation of such hazardous substances and their constituents.

3. Short-term effectiveness

The short-term effectiveness of alternatives must be assessed considering appropriate factors among the following:

- Magnitude of reduction of existing risks;
- Short-term risks that might be posed to the community, workers, or the environment during implementation of an alternative including potential threats to human health and the environment associated with excavation, transportation, and redisposal or containment;
- Time until full protection is achieved.

4. Long-term effectiveness and permanence

Alternatives are assessed for the long-term effectiveness and permanence they afford along with the degree of certainty that the remedy will prove successful. Factors considered are:

- Magnitude of residual risks in terms of amounts and concentrations of waste remaining following implementation of a remedial action, considering the persistence, toxicity, mobility, and propensity for bioaccumulation of such hazardous substances and their constituents;
- The degree to which the treatment is irreversible;
• Type and degree of long-term management required, including monitoring and operation and maintenance;

• Potential for exposure of human and environmental receptors to remaining waste considering the potential threat to human health and the environment associated with excavation, transportation, redisposal, or containment;

• Long-term reliability of the engineering and institutional controls, including uncertainties associated with land disposal of untreated wastes and residuals;

• Potential need for replacement of the remedy.

5. Implementability

The ease or difficulty of implementing the alternatives are assessed by considering the following types of factors:

• Degree of difficulty associated with constructing the technology;

• Expected operational reliability of the technologies;

• Need to coordinate with and obtain necessary approvals and permits (e.g., NPDES, dredge and fill permits for off-site actions) from other offices and agencies;

• Availability of necessary equipment and specialists;

• Available capacity and location of needed treatment, storage, and disposal services.

6. Cost

The types of costs that should be assessed include the following:

• Capital cost;

• Operation and maintenance costs;

• Net present value of capital and O&M costs;

• Potential future remedial action costs.

7. Community acceptance

This assessment examines:

• Components of the alternatives that the community supports;

• Features of the alternatives about which the community has reservations;

• Elements of the alternatives which the community strongly opposes.

8. State acceptance

Evaluation factors include assessments of:

• Components of the alternatives the state supports;

• Features of the alternatives about which the state has reservations;

• Elements of the alternatives under consideration that the state strongly opposes.
9. OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT


B. DESCRIPTION OF ALTERNATIVES

BASED ON APPEARANCE AND PAST SITE OPERATIONS, THE FOLLOWING STRUCTURES WILL BE TREATED AS CONTAMINATED WITH PCP AND/OR PNAS: YARD OFFICES A AND B, STORAGE TRAILER, MAINTENANCE SHOP, WOOD STORAGE SHED, TREATMENT BUILDING, TANKS A THROUGH E, AND PORTIONS OF THE INTERIOR OF THE SAWMILL.

ALL THESE CONTAMINATED AREAS ARE ADDRESSED BY THIS RECORD OF DECISION. THE CONDITIONS AT THE SITE DICTIONATED LOOKING AT ALTERNATIVES TO ADDRESS THE SITE AS TWO PROBLEMS: (1) SOURCE CONTROL—CLEANING THE SURFACE SOILS, DRAINAGeway SEDIMENTS, AND LAGOON WATER AND SLUDGES; (2) GROUNDWATER.

IN CONFORMANCE WITH EPA REGULATION, 40 CFR PART 300, ALSO KNOWN AS THE NATIONAL CONTINGENCY PLAN, THE UNIVERSE OF POSSIBLE APPLICABLE TECHNOLOGIES WAS SCREENED TO DETERMINE WHETHER THEY MIGHT BE APPROPRIATE FOR THIS SITE. (SEE THE FEASIBILITY STUDY FOR DETAILS OF THIS EVALUATION). THIS SET OF POSSIBLE TECHNOLOGIES WAS THEN SCREENED BASED ON EXISTING SITE WASTES AND CONDITIONS, AND THEIR ABILITY TO MINIMIZE LONG TERM THREAT TO HUMAN HEALTH AND THE ENVIRONMENT. THE PROTECTION OF WORKERS WORKING ONSITE WAS ALSO CONSIDERED. THIS PROCESS HIGHLIGHTED 23 AVAILABLE TECHNOLOGIES. THEN, FROM THESE 23 POSSIBLE TECHNOLOGIES, SIX SOURCE CONTROL AND FIVE GROUNDWATER ALTERNATIVES WERE CHOSEN FOR MORE DETAILED EVALUATION AND COMPARISON WITH RESPECT TO THE NINE REMEDY SELECTION CRITERIA OUTLINED ABOVE. THE SOURCE CONTROL AND GROUNDWATER REMEDIES WERE EVALUATED SEPARATELY BUT THEY WILL BE IMPLEMENTED CONCURRENTLY.

CERTAIN ACTIONS ARE COMMON TO ALL ALTERNATIVES. FOR EXAMPLE, ALL EXISTING MONITOR WELLS, PIEZOMETERS AND WATER WELLS ON THE SITE WERE ASSUMED TO BE PLUGGED AND ABANDONED FOR COST ESTIMATING PURPOSES EXCEPT FOR MONITOR WELL MW-1S. THIS WELL WILL BE RETAINED TO PROVIDE AN UPGRADEMENT WELL FOR POST-REMEDICATION MONITORING. THE REMEDIAL ACTION AND ANY POSSIBLE FUTURE USE OF THE SITE WOULD PRESENT A RISK OF DAMAGING THE WELLS. PLUGGING AND ABANDONMENT OF THE WELLS WILL ELIMINATE THE RISK OF DAMAGE TO THE INTEGRITY OF THE WELL SEAL AND CASING WITH THE CONSEQUENT RISK OF CONTAMINATION OF THE AQUIFER THROUGH THE DAMAGED WELL.

C. SOURCE CONTROL ALTERNATIVES

AS PART OF THE SOURCE CONTROL ALTERNATIVES, A CARBON ADSORPTION TREATMENT SYSTEM WILL BE USED FOR DECONTAMINATING THE LIQUID WASTES FOR ALL ALTERNATIVES EXCEPT ALTERNATIVE I, WHICH DOES NOT INCLUDE ANY TREATMENT, AND ALTERNATIVE VI, WHICH RECOMMENDS USING UV/OZONATION.

THE RECOVERED OIL FROM THE OIL-WATER SEPARATOR WILL BE SENT TO A HAZARDOUS WASTE INCINERATOR. THE CARBON WILL EITHER BE REGENERATED OR DISPOSED OF AS RESIDUE FROM HAZARDOUS WASTE TREATMENT UNIT.

ALTERNATIVE I, NO ACTION - THIS ALTERNATIVE CONSISTS PRIMARILY OF RESTRICTING PUBLIC ACCESS TO THE CONTAMINATED AREAS AND MONITORING THE SITE. THE EXISTING FENCE WOULD BE MAINTAINED AND WARNING SIGNS WOULD BE INSTALLED. THE SITE MONITORING WILL INVOLVE PERIODIC AIR AND GROUNDWATER SAMPLING AND ANALYSIS. THIS ACTION WOULD CONTINUE FOR AT LEAST 30 YEARS.

ALTERNATIVE II, CONTAINMENT - THIS ALTERNATIVE INVOlVES IN-SITU SOLIDIFICATION OF LAGOON WASTES; EXCAVATION OF DRAINAGeway SEDIMENTS, SOLIDIFICATION OF DRAINAGE SEDIMENTS IF NECESSARY, AND PLACEMENT OF DRAINAGE SEDIMENTS IN LAGOONS; THEN CONSTRUCTION OF A SURFACE CAP DESIGNED TO MEET ALL PERTINENT REGULATIONS AND STATUTES. APPROXIMATELY 998,000 GALLONS OF CONTAMINATED STORMWATER RUNOFF DURING CONSTRUCTION AND 620,000 GALLONS OF LAGOON LIQUIDS, WOULD BE COLLECTED, TREATED, AND DISCHARGED. ANY LIQUID DISCHARGES WOULD BE SENT TO THE ONSITE STREAM. THE DISCHARGED WATER WOULD CONFORM TO APPLICABLE OR RELEVANT AND APPROPRIATE STANDARDS.

ALTERNATIVE III, ONSITE LANDFILL - SINCE THERE IS ADEQUATE SPACE AVAILABLE, A LANDFILL COULD BE LOCATED ON SITE. THE LANDFILL WOULD HAVE PROTECTIVE TOP AND BOTTOM LINERS WHICH SATISFY ALL REQUIREMENTS AND ARE PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT. THE SITE WASTES (SURFACE
SOILS, SEDIMENTS, AND SLUDGES) WOULD BE STABILIZED THEN PLACED IN THE LANDFILL. THE LAGOON LIQUIDS WOULD BE COLLECTED, TREATED, AND DISCHARGED. THE DISCHARGED WATER WOULD CONFORM TO APPLICABLE OR RELEVANT AND APPROPRIATE STANDARDS.

ALTERNATIVE IV, ONSITE BIOLOGICAL TREATMENT - ALTERNATIVE IV INVOLVES ONSITE BIOTREATMENT OF WASTES USING A COMBINATION OF A LIQUID/SOLIDS CONTACT REACTOR AND LAND TREATMENT TECHNOLOGIES. THE REACTOR WOULD BE USED FOR THE CONCENTRATED WASTES (LAGOON SEDIMENTS) AND LANDFARMING WOULD BE APPLIED TO THE LESS CONTAMINATED SOILS AND DRAINAGEWAY SEDIMENTS. AN INTEGRAL PART OF THIS REMEDIAL ACTION WOULD BE SECURING A WAIVER TO THE RCRA LAND BAN AS IT IMPACTS THE PROPOSED LANDFARMING OPERATION. THE LAGOON LIQUIDS WOULD BE COLLECTED, TREATED AND DISCHARGED. THE DISCHARGED WATER WOULD CONFORM TO APPLICABLE OR RELEVANT AND APPROPRIATE STANDARDS. THIS ACTION COULD REQUIRE MONITORING FOR UP TO 30 YEARS.

ALTERNATIVE V, ONSITE INCINERATION - ALTERNATIVE V IS COMPOSED OF BRINGING TO THE SITE A TRANSPORTABLE INCINERATOR TO DESTROY THE WASTES. ALL SOILS, SEDIMENTS AND SLUDGES CONTAMINATED WITH GREATER THAN 1 PPM PCP, WOULD BE TREATED AND RETURNED TO THE SITE, AS AN ASH. THE ASH WILL BE TESTED TO INSURE IT MEETS THE CLEAN-UP STANDARDS DESCRIBED ON PAGE 6. AS WITH ALL SOURCE CONTROL REMEDIES, EXCEPT NO ACTION, THE LAGOON LIQUIDS WILL BE COLLECTED, TREATED AND DISCHARGED. THE DISCHARGED WATER WOULD CONFORM TO APPLICABLE OR RELEVANT AND APPROPRIATE STANDARDS. THIS ACTION WOULD TAKE TWO YEARS TO IMPLEMENT.

ALTERNATIVE VI, ONSITE INCINERATION WITH ULTRAVIOLET/OZONATION - SAME REMEDY AS ALTERNATIVE V BUT USING UV/OZONATION AS THE WATER TREATMENT SYSTEM INSTEAD OF CARBON ADSORPTION. IT WAS INITIALLY FELT UV/OZONATION COULD BE A MORE COST-EFFECTIVE WATER TREATMENT ALTERNATIVE. NOW IT IS PROJECTED TO BE SIMILAR IN EFFECTIVENESS TO ALTERNATIVE V. THIS ACTION COULD TAKE UP TO SEVEN YEARS TO IMPLEMENT.

D. GROUNDWATER ALTERNATIVES

ALTERNATIVE 1, NO ACTION - INCLUDES ONLY GROUNDWATER MONITORING. NO REMEDIAL ACTIONS WOULD BE IMPLEMENTED TO ADDRESS GROUNDWATER CONTAMINATION. THIS ACTION WOULD BE CONTINUED FOR AT LEAST 30 YEARS.

ALTERNATIVE 2, CONTAINMENT - THIS ALTERNATIVE CONSISTS OF CONSTRUCTING A SOIL-BENTONITE SLURRY WALL BARRIER TO SUCH DEPTH THAT THE WALL SURROUNDS THE PLUME. A SURFACE CAP WOULD ALSO BE CONSTRUCTED TO COVER THE CONTAMINATED SURFACE AREA.

ALTERNATIVE 3, RECOVERY WELLS - MINIMAL PROGRAM - THIS ALTERNATIVE INCLUDES INSTALLATION OF TWO RECOVERY WELLS, COMPLETED TO DEPTHS OF JUST BELOW THE OIL PHASE. THE GROUNDWATER TREATMENT SYSTEM WOULD INCLUDE AN OIL-WATER SEPARATOR AND A CARBON ADSORPTION SYSTEM WHICH WOULD TREAT THE WATER. THE CLEANUP IS ESTIMATED TO TAKE BETWEEN 5-10 YEARS.

ALTERNATIVE 4, RECOVERY WELLS - ACCELERATED PROGRAM - THIS REMEDY IS THE SAME AS ALTERNATIVE 3 BUT PROPOSES FOUR WELLS INSTEAD OF TWO. THE ACCELERATED PROGRAM REDUCES CLEANUP TIME FROM 5-10 YEARS TO 1-5 YEARS.

ALTERNATIVE 5, FRENCH DRAIN - THE FRENCH DRAIN AND SUMP WOULD BE CONSTRUCTED ON THE DOWNGRADIENT EDGE OF THE PLUME. AT THE SUMP DISCHARGE THERE WOULD BE AN OIL-WATER SEPARATOR WITH A CARBON ADSORPTION UNIT. THIS METHOD COULD TAKE UP TO 30 YEARS. THIS IS EXPECTED TO BE LESS EFFECTIVE THAN ALTERNATIVES 3 AND 4 IN RECOVERING THE OIL PHASE BECAUSE OF THE REDUCED ABILITY TO DRAW DOWN CONTAMINANTS TO THE FRENCH DRAIN.
E. EVALUATION OF ALTERNATIVES

THE DEGREE THAT THE REMEDIAL ALTERNATIVES MEET THE NINE SELECTION CRITERIA DESCRIBED EARLIER IS CONTAINED IN TABLE 2. THE FOLLOWING SYMBOLS WERE ASSIGNED TO COMPARE REMEDIAL SELECTION CRITERIA:

+ ALTERNATIVE WOULD EXCEED A CRITERION IN COMPARISON TO OTHER ALTERNATIVES.

0 ALTERNATIVE ACHIEVES SELECTION CRITERIA.

- SPECIAL EFFORTS WILL BE NECESSARY IN THE DESIGN OF THE REMEDY TO MEET THE SELECTION CRITERION.

( ) BLANK INDICATES NO DISCERNABLE OPINION.

1. COMPLIES WITH ARARS (I.E., MEETS OR EXCEEDS APPLICABLE OR RELEVANT AND APPROPRIATE FEDERAL AND STATE REQUIREMENTS)

SOURCE CONTROL

THE NO ACTION REMEDY WAS RATED "-" BECAUSE IT DOES NOT MEET THE INTENT OF THE RCRA AND SUPERFUND REQUIREMENTS FOR REMEDIATION OF A HAZARDOUS WASTE SITE. CONTAINMENT CAN MEET REQUIREMENTS, BUT IT WOULD LIKELY BE INEFFECTIVE DUE TO THE FRACTURED SITE GEOLOGY. CONTAINMENT WAS GIVEN "0".

THE NATIONAL CONTINGENCY PLAN PROVISIONS TO RESPOND TO A THREAT OF RELEASE ARE NOT SATISFIED BY THIS REMEDY. THE ONSITE LANDFILL WAS RATED "-" BECAUSE THE EXISTING LEVELS OF DIOXINS AND FURANS POSSIBLY EXCEED THE ALLOWABLE LAND DISPOSAL CONCENTRATIONS FOR THIS WASTE. ACCORDING TO CONTEMPORARY LABORATORY AND LITERATURE DATA, BIOLOGICAL TREATMENT IS UNCERTAIN FOR THESE PARTICULAR WASTES. THUS, THE RATING IS ( ).

INCINERATION WAS RATED THE HIGHEST FOR THIS CRITERION (+) BECAUSE IN ADDITION TO EXCEEDING ALL RELEVANT OR APPLICABLE AND APPROPRIATE ENVIRONMENTAL REGULATIONS, THIS ALTERNATIVE MOST EFFECTIVELY MEETS THE INTENT OF SARA FOR PERMANENTLY ADDRESSING THE SITE CONTAMINANTS.

GROUNDWATER

NO ACTION WOULD NOT ATTAIN ARARS AND WOULD NOT REDUCE EXISTING CONTAMINATION AND THUS RECEIVED A "-".

CONTAINMENT WAS GIVEN A "-" BECAUSE THE SUBSURFACE GEOLOGY WOULD PREVENT IT FROM ACHIEVING THE ARARS. THE TWO PUMPING ALTERNATIVES WERE GIVEN "+" DUE TO THEIR ABILITY TO ACHIEVE THE SPECIFIED CLEAN UP LEVELS. THE FRENCH DRAIN WAS GIVEN A "-" BECAUSE IT IS NOT EXPECTED TO BE ABLE TO ATTAIN CLEAN UP LEVELS WITHIN THE PLUME.

2. REDUCES MOB., TOX., VOL. (I.E., REDUCES THE MOBILITY, TOXICITY, OR VOLUME OF WASTE)

SOURCE CONTROL

NO ACTION WAS RATED "-" FOR MOBILITY, TOXICITY, AND VOLUME REDUCTION BECAUSE IT DOES NOTHING TO ADDRESS ANY OF THE STATED CRITERIA. CONTAINMENT WAS RATED "-" FOR MOBILITY REDUCTION DUE TO THE FRACTURED SUBSURFACE GEOLOGY. PERCOLATION WOULD BE REDUCED BUT WITH NEGLIGIBLE IMPACT ON THE SUBSURFACE FLOW. CONTAINMENT WOULD NOT REDUCE THE TOXICITY OF THE WASTE, THUS IT RECEIVED A "-" FOR TOXICITY REDUCTION. THE CONTAMINATED VOLUME WOULD NOT DECREASE, THEREFORE CONTAINMENT RECEIVES A "-" FOR VOLUME REDUCTION.

ONSITE LANDFILL WAS RATED "0" FOR MOBILITY REDUCTION BECAUSE THIS ALTERNATIVE COULD REDUCE PERCOLATION AND THUS THE MOBILITY OF CONTAMINANTS; FOR REDUCTION OF TOXICITY AND VOLUME THE LANDFILL ALTERNATIVE WAS RATED "-" BECAUSE NEITHER OF THESE ARE REDUCED. ONSITE BIOLOGICAL TREATMENT, DUE TO THE RELATIVE UNCERTAINTY ASSOCIATED WITH THIS REMEDY FOR REDUCING THE TOXICITY OF THESE WASTES, WAS GIVEN A "-". MOBILITY MIGHT BE REDUCED WITH THE BIOTREATMENT ALTERNATIVE, AND SO RECEIVED A "+". VOLUME WOULD NOT BE REDUCED SINCE THERE WOULD BE SOIL ADDITION, THUS IT RECEIVED A "-".

THE THERMAL DESTRUCTION ALTERNATIVES (WITH CARBON ADSORPTION AND UV/OZONATION) WERE GIVEN RATINGS OF "+" DUE TO THE COMPLETE DESTRUCTION ACHIEVED BY THESE REMEDIES. FOR BOTH REMEDIES, MOBILITY, TOXICITY, AND VOLUME WOULD BE REDUCED. THUS, ALL THREE CATEGORIES FOR BOTH ALTERNATIVES WERE RATED POSITIVELY.
GROUNDWATER

No action was given a "-" because there would be no reduction of mobility, toxicity, or volume. Containment was given "-" ratings since the fractured subsurface geology would render the slurry walls ineffective for reducing mobility, toxicity, or volume.

The two pump and treat methods were given "+" ratings because they reduce the mobility, toxicity and volume of the plume. The French drain would not be as effective due to the reduced ability to draw the contaminants down to the French drain, thus it was given "0" for all three categories.

3. Short Term Effectiveness

Source Control

No action leaves contaminated seeps and waste exposed to the public, thus the no action rated "-". The simple containment remedy (Alt. 2) was judged capable of being designed to present essentially no risk to workers or residents. It would reduce direct contact threats but would not address groundwater problems. It received a neutral rating "0". Ongoing landfilling was also assigned a "0" because although the handling would require additional attention, standard safety precautions would adequately protect the site workers. Ongoing biotreatment was assigned a "-" because of the uncertainty of the ability of this technology to be effective. The on-site thermal treatment options were assigned a single "0" because potential risks can be prevented through careful design and standard safety precautions.

Groundwater

No action and containment received negative ratings ("-"). No action would do nothing to address site risks. Based on the subsurface geology, containment would not be effective. The minimal pump and treat was given a "0" because, although better than the first two alternatives, it is not as effective in the short term as the accelerated program. The accelerated program would be most effective in the short term, thus it received a "+". The French drain alternative received a "0" rating. This alternative would be marginally effective in the short term.

4. Long Term Effectiveness

Source Control

No action will do nothing to reduce long term risks to human health and the environment thus received a rating of "-". Containment is rendered ineffective due to the subsurface geology thus it receives a "-". Ongoing landfilling leaves the waste in place, the toxicity is not reduced, and the volume is increased, these alternatives therefore each merited a "-".

Uncertainties with the ability of biotreatment to treat the site specific wastes lead to a "-". Because of the added assurance of complete destruction of the waste with thermal destruction technology, those remedies were rated "+".

Groundwater

No action would have no long term effectiveness, therefore it received a "-". Containment would be ineffective in the long term due to the fractured subsurface geology, thus it also received a "-". Minimal pumping and treatment will be effective in the long term, thus it received a "+". The accelerated pump and treat program would be the most effective and received a "+". The effectiveness of the French drain system is seriously questionable, thus received a "-".

5. Implementability

Source Control

No action alternative is easy to implement, it receives a "+". Containment is implementable, as is the landfill. They both received "0". Biotreatment would require more attention during design than other remedies to ensure implementability (acquiring a waiver to the land ban) and was therefore given "-". The thermal destruction alternatives are both implementable, they both received a "0".
GROUNDWATER

NO ACTION IS EASY TO IMPLEMENT AND RECEIVED A "+". CONTAINMENT IS IMPLEMENTABLE AND RECEIVES A "0". THE TWO PUMP AND TREAT METHODS ARE IMPLEMENTABLE AND RECEIVED "0". THE FRENCH DRAIN IS NOT PRACTICAL TO IMPLEMENT BECAUSE THE DEPTH REQUIRED BROACHES THE CURRENT WATER BEARING ZONE, IT RECEIVED A "-".

6. COST

ESTIMATED COSTS FOR EACH ALTERNATIVE ARE SUMMARIZED IN TABLE 2.

7. COMMUNITY ACCEPTANCE

FROM PRIOR MEETINGS AND CORRESPONDENCE, IT IS EVIDENT THAT LOCAL RESIDENTS WANT SOMETHING DONE ABOUT THE PROBLEM (I.E., NOT THE "NO ACTION" REMEDY). THERMAL DESTRUCTION, WITHOUT UV/OZONATION, WAS THE ONLY SOURCE CONTROL REMEDY THAT THE COMMUNITY DISCUSSED AND ACCELERATED PUMPING AND TREATMENT WAS THE ONLY GROUND WATER REMEDY DISCUSSED. THESE WERE BOTH ACCEPTED BY THE COMMUNITY, THEREFORE THEY MERITED A "0". RATINGS FOR ALL OTHER REMEDIES ARE LEFT BLANK.

8. STATE ACCEPTANCE

THE STATE (ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY) HAS CONCURRED WITH THE ONSITE INCINERATION AND ACCELERATED PUMP AND TREATMENT FOR GROUNDWATER. THESE, THEREFORE, RECEIVED A "+". THE OTHER REMEDIES WERE JUDGED TO BE LESS DESIRABLE, THEY RECEIVE "0".

9. OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

SOURCE CONTROL

DUE TO THE HEALTH THREAT POSED BY UNTREATED WASTE REMAINING ON-SITE, THE NO ACTION, CONTAINMENT, AND LANDFILL ALTERNATIVES RECEIVED A RATING OF "-". THE UNCERTAINTIES ASSOCIATED WITH BIOTREATMENT LEAD TO A RATING OF "-". THE THERMAL DESTRUCTION REMEDIES RECEIVED THE HIGHEST RATING OF "+", BECAUSE THEY RESULT IN ELIMINATION OF THE ORGANIC CONTAMINANTS. THE THERMAL TREATMENT UNIT WOULD BE DESIGNED TO MEET RCRA STANDARDS. DESTRUCTION OF THE ORGANIC CONTAMINATION WILL REDUCE THE POTENTIAL FOR HUMAN EXPOSURE.

GROUNDWATER

NO ACTION IS NOT PROTECTIVE AND RECEIVES A "-". THE SUBSURFACE GEOLGY IS FRACTURED SUCH THAT CONTAINMENT WOULD BE RENDERED INEFFECTIVE; Thus, CONTAINMENT RECEIVED A "-". THE TWO RECOVERY WELL PROGRAMS RECEIVE "+" BECAUSE THESE ARE THE MOST EFFECTIVE IN ADDRESSING THE CONTAMINATION. SINCE THE EFFECTIVENESS OF THE FRENCH DRAIN IS QUESTIONED, ITS PROTECTION IS QUESTIONED. IT RECEIVES A "-".

V. PROPOSED REMEDY: V. ONSITE THERMAL DESTRUCTION OF CONTAMINATED SOILS, SLUDGES, AND SEDIMENTS AND 4. ACCELERATED PUMP AND TREATMENT OF THE GROUNDWATER.

CONSIDERING THE CURRENT AND POTENTIAL SITE HAZARDS, AND ALSO TAKING INTO ACCOUNT THE UNIQUE HYDROGEOLOGY OF THE SITE, EPA SELECTS AND ADEPC CONCURS WITH THE ABOVE REMEDY. THIS REMEDY CONSISTS OF: EXCAVATING THE CONTAMINATED DRAINAGEWAY SEDIMENTS AND SURFACE SOILS, DEWATERING THE LAGOONS AND REMOVING THE SLUDGES, THEN THERMALLY TREATING AND DESTROYING THESE WASTES. THE AIR EMISSIONS OF THE THERMAL DESTRUCTION UNIT WILL BE MONITORED TO ENSURE SAFE OPERATION. THE SYSTEMS WILL BE DESIGNED TO MEET ALL ARARS. SOILS WITH GREATER THAN 1 PPM PCP WILL BE EXCAVATED AND INCINERATED. A SAMPLING STRATEGY WILL BE DEVELOPED DURING THE REMEDIAL DESIGN PHASE OF THE PROJECT TO ENSURE ATTAINMENT OF THIS SOIL CLEANUP LEVEL. TREATED WATER WILL ACHIEVE TWO CLEANUP LEVELS: THE MAXIMUM CONTAMINANT LEVEL GOAL OF 0.2 MG/L FOR PCP; THE 1 X 10^-5 INCREASED CANCER RISK CONCENTRATION OF 28 NG/L FOR PNAS. THE CONTAMINATED GROUNDWATER WILL BE PUMPED AND THE OIL WILL BE SEPARATED FROM THE WATER. THE WATER WILL BE TREATED WITH CARBON ADSORPTION AND THE OIL WILL BE RECYCLED IF POSSIBLE. IF IT IS NOT POSSIBLE TO RECYCLE THE GROUNDWATER WILL BE PUMPED AND THE OIL WILL BE SEPARATED FROM THE OIL IT WILL BE THERMALLY DESTROYED. THE "SPENT" CARBON WILL BE DISPOSED OF APPROPRIATELY. THE SITE AIR AND GROUNDWATER WILL BE MONITORED TO ENSURE THAT AN ADEQUATE CLEANUP HAS BEEN COMPLETED.
RATIONALE

This alternative is protective and cost-effective, and attains applicable or relevant and appropriate federal and state standards. It utilizes permanent solutions and treatment technologies that reduce contaminant mobility, toxicity, and volume to the maximum extent practicable.

The value of this remedy is three-fold: the acceptance and cooperation of all parties; relatively low cost for permanent treatment; finally thermal destruction would allow for a walk-away remedy.

CLEANUP LEVEL

The soils, sludges, and sediments will all be addressed to a level of 1 ppm PCP. This level is derived from the Arkansas water quality regulation #2, which has been determined to be the most stringent existing regulation. Attached is a letter from ADPCE stating that this regulation has been sufficiently promulgated and consistently enforced. This level is expected to clean the site to a 1 x 10⁻⁶ incremental cancer risk level. It is planned to excavate at least 13,000 cubic yards of soils, sludges, and sediments. This clean-up level will be verified with periodic sampling during excavation. This sampling scenario will be further delineated in the remedial design phase of the project.

The total PCP clean-up level of 1 ppm is sufficiently stringent so that coexisting PNA contaminants will be destroyed to concentrations well below those that present any significant threat to the public health or environment. The PNA clean-up level achieved is expected to exceed clean-up levels at Superfund sites where PNAS are the main contaminant of concern.

The lagoon water and the groundwater will be treated to two clean-up levels: for PCP, a health based goal of 0.2 mg/L, established by the Safe Drinking Water Act; for PNAS the 1 x 10⁻⁵ cancer risk level, from EPA's ambient water quality criteria. It is estimated that 1.07 million gallons of lagoon water and groundwater will have to be pumped and treated. This volume verification will also be outlined in the remedial design phase.

The reasons for elimination of the other remedies are as follows:

SOURCE CONTROL

Alternative I, no action - this alternative is not protective of public health and the environment. It meets neither the intent of RCRA nor SARA.

Alternative II, containment - due to the site subsurface geology, a slurry wall, and thus this alternative, is rendered ineffective. The underlying formation is weathered and fractured shale. The cost associated with this alternative is high compared to its level of protection.

Alternative III, onsite landfill - this remedy is not permanent treatment and is not "walk away". It does not provide long term protection and would require perpetual operation and maintenance. The cost relative to alternative V is high considering the level of protection for the environment and public health offered by alternative III. Since this is considered regulated waste, compliance with the RCRA land disposal restrictions is required. Use of a landfill violates the land ban, therefore this remedy is rejected.

Alternative IV, onsite biological degradation - the effectiveness of this alternative is questionable. Because of the uncertainty associated with this alternative, and the high cost, which includes a contingency for process failure, this alternative was viewed as less attractive than the proposed action. The cost savings is not significant compared to the uncertainty in the technology.

Alternative VI, onsite thermal destruction with UV/ozonation - this is the same remedy as alternative V except the water would be treated with UV/ozonation instead of carbon adsorption. It was initially thought that UV/ozonation could be a more effective water treatment alternative; this was, however, found not to be the case. Since the UV/ozonation costs were estimated to be higher than those for carbon adsorption, the selected alternative is preferred.
GROUNDWATER

ALTERNATIVE 1, NO ACTION - SAME AS NO ACTION ABOVE.

ALTERNATIVE 2, CONTAINMENT - SAME AS CONTAINMENT ABOVE.

ALTERNATIVE 3, PUMP AND TREAT, MINIMAL - THIS IS THE SAME AS ALTERNATIVE 4, THE SELECTED ALTERNATIVE, BUT AT A GREATER COST AND MORE TIME SINCE THIS REMEDY ONLY UTILIZES TWO PUMPS.

ALTERNATIVE 5, FRENCH DRAIN - INSTALLATION MAY NOT BE PRACTICAL DUE TO THE DEPTH REQUIRED BY THE SYSTEM. THIS DEPTH IS LOWER THAN THE ARTESIAN HEAD OF THE WATER BEARING ZONE. THIS ALTERNATIVE IS ALSO LESS EFFECTIVE AT REDUCING MOBILITY, TOXICITY, AND VOLUME THAN ALTERNATIVE 4 AND IT IS MORE EXPENSIVE.

CONSISTENCY WITH THE NATIONAL CONTINGENCY PLAN (NCP) AND THE PROVISIONS OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA)

THE PROPOSED REMEDY PROVIDES ADEQUATE PROTECTION OF PUBLIC HEALTH, WELFARE, AND THE ENVIRONMENT. THIS ALTERNATIVE IS ALSO CONSISTENT WITH THE NATIONAL CONTINGENCY PLAN (NCP), IN 40 CFR 300.68(H)(2)(IV) AND (VI), (FEDERAL REGISTER, 1985) WHICH REQUIRES:

(IV) AN ASSESSMENT OF EACH ALTERNATIVE IN TERMS OF THE EXTENT TO WHICH IT IS EXPECTED TO EFFECTIVELY MITIGATE AND MINIMIZE THREATS TO AND PROVIDE ADEQUATE PROTECTION OF PUBLIC HEALTH, WELFARE AND THE ENVIRONMENT.

(VI) AN ANALYSIS OF ANY ADVERSE ENVIRONMENTAL IMPACTS, METHODS FOR MITIGATING THESE IMPACTS, AND COSTS OF MITIGATION.

ADDITIONALLY, THE LONG-TERM EFFECTIVENESS FACTORS CITED IN SARA SECTION SS121(B)(1) WERE ADDRESSED. THESE INCLUDE:

A) THE LONG-TERM UNCERTAINTIES ASSOCIATED WITH LAND DISPOSAL;

B) THE GOALS, OBJECTIVES, AND REQUIREMENTS OF THE SOLID WASTE DISPOSAL ACT;

C) THE PERSISTENCE, TOXICITY, MOBILITY, AND PROPENSITY TO BIOACCUMULATE OF SITE HAZARDOUS SUBSTANCES AND THEIR CONSTITUENTS.

D) SHORT- AND LONG-TERM POTENTIAL FOR ADVERSE HEALTH EFFECTS FROM HUMAN EXPOSURE;

E) LONG-TERM MAINTENANCE COST;

F) THE POTENTIAL FOR FUTURE REMEDIAL ACTION COSTS IF THE REMEDIAL ACTION IN QUESTION WERE TO FAIL; AND

G) THE POTENTIAL THREAT TO HUMAN HEALTH AND THE ENVIRONMENT ASSOCIATED WITH EXCAVATION, TRANSPORTATION, AND REDISPOSAL, OR CONTAINMENT.
OPERATION AND MAINTENANCE (O&M)

SITE OPERATION AND MAINTENANCE WILL INCLUDE A 1 YEAR GROUNDWATER AND AIR MONITORING AND ANALYSIS PROGRAM.

FUTURE ACTIONS

NO FUTURE REMEDIAL ACTIONS ARE ANTICIPATED AFTER COMPLETION OF THE PROPOSED REMEDY. THE SELECTED REMEDIAL ACTION IS CONSIDERED PERMANENT. IF, HOWEVER, SIGNIFICANT UNFORESEEN OFF-SITE CONTAMINATION OCCURS AS A RESULT OF THE SITE, APPROPRIATE REMEDIAL MEASURES WILL BE TAKEN. AS STATED UNDER THE O&M SECTION, THE SITE WILL BE MONITORED FOR 1 YEAR TO ENSURE THE RELIABILITY OF THE IMPLEMENTED REMEDIAL ACTION.

REMEDIAL ACTION SCHEDULE

APPROVE REMEDIAL ACTION (SIGN ROD) MARCH 1988

COMPLETE ENFORCEMENT NEGOTIATIONS JULY 1988

OBLIGATE FUNDS TO BEGIN REMEDIAL DESIGN JULY 1988 (ASSUMING THE PRPS DO NOT TAKE OVER)

COMPLETE DESIGN OCTOBER 1989

OBLIGATE FUNDS TO START REMEDIAL ACTION OCTOBER 1989

COMPLETE REMEDIATION APRIL 1991 (DEPENDING ON GROUND WATER CLEAN-UP).
TABLES, MEMORANDA, ATTACHMENTS

STATE OF ARKANSAS
DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY

MARCH 21, 1988

DR. ALLYN M. DAVIS, DIRECTOR
HAZARDOUS WASTE MANAGEMENT DIVISION (6H)
U.S. EPA, REGION VI
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX  75202-2733

DEAR DR. DAVIS:

RE:  OLD MIDLAND PRODUCTS CO.
RECORD OF DECISION (ROD)

I RECEIVED THE DRAFT ROD FOR THE OLD MIDLAND SUPERFUND SITE UNDER YOUR TRANSMITTAL LETTER OF FEBRUARY 23, 1988, WHICH REQUESTED OUR CONCURRENCE WITH THE PROPOSED REMEDY. THIS LETTER SERVES NOTICE OF OUR CONCURRENCE WITH THE PROPOSED REMEDY WHICH INCLUDES ON-SITE THERMAL DESTRUCTION OF CONTAMINATED SOILS, SLUDGES, AND SEDIMENTS AND ACCELERATED PUMPING AND TREATMENT OF THE GROUNDWATER.

HOWEVER, ONE ISSUE WHICH WE FEEL DESERVES ADDITIONAL INVESTIGATION REGARDS COMMENT #2 IN THE RESPONSIVENESS SUMMARY - SECTION II. AS STATED IN EPA'S RESPONSE, WE DID PERFORM MORE SAMPLING TO THE NORTH OF OLD HIGHWAY 10 AND IN AREAS OF KEELAND CREEK ABOVE AND BELOW THE CONFLUENCE OF KEELAND CREEK AND THE DITCH DRAINING FROM THE SITE. WHILE THE RESULTS INDICATE THAT THE CONSTITUENTS OF CONCERN DO NOT EXIST ABOVE THE ROD LIMITS OF CONCERN, WE FEEL THAT ADDITIONAL INVESTIGATION IN THIS AREA IS JUSTIFIED DURING THE REMEDIAL DESIGN PHASE. WE WOULD PROPOSE THAT REMAINING FUNDS FROM THE ORIGINAL REMEDIAL INVESTIGATION FUNDING ALLOCATION BE USED TO FURTHER DOCUMENT THE EXISTENCE OR NONEXISTENCE OF SIGNIFICANT LEVELS OF CONTAMINANT MIGRATION FROM THE OLD MIDLAND SITE. THE FUNDS REMAINING SHOULD BE ADEQUATE FOR THIS PURPOSE AND WOULD BE IMPLEMENTED CONCURRENTLY WITH THE REMEDIAL DESIGN PHASE.

SHOULD YOU HAVE ANY QUESTIONS IN THIS REGARD, PLEASE CALL MY STAFF OR ME AT (501) 562-7444. WE LOOK FORWARD TO THE SUCCESS OF THIS PROJECT.

SINCERELY,

PAUL MEANS
DIRECTOR

PM:FW:DAVIS MIDLAND

CC:  MIKE BATES, ADPC&E.
RESPONSIVENESS SUMMARY

THIS COMMUNITY RELATIONS RESPONSIVENESS SUMMARY HAS BEEN PREPARED TO PROVIDE WRITTEN RESPONSES TO COMMENTS SUBMITTED REGARDING THE PROPOSED PLAN OF ACTION AT THE OLD MIDLAND WOOD PRODUCTS HAZARDOUS WASTE SITE. THE SUMMARY IS DIVIDED INTO TWO SECTIONS:

SECTION I. BACKGROUND OF COMMUNITY INVOLVEMENT AND CONCERNS. THIS SECTION PROVIDES A BRIEF HISTORY OF COMMUNITY INTEREST AND CONCERNS RAISED DURING THE REMEDIAL PLANNING ACTIVITIES AT THE OLD MIDLAND SITE.

SECTION II. SUMMARY OF MAJOR COMMENTS RECEIVED. THE COMMENTS (both oral and written) are summarized and EPA's RESPONSES are provided.

I. BACKGROUND OF COMMUNITY INVOLVEMENT


II. SUMMARY OF MAJOR COMMENTS RECEIVED


THE RESIDENTS AND LOCAL OFFICIALS DO NOT OPPOSE THE PROPOSED PLAN OF ONSITE INCINERATION/CARBON ADSORPTION AND (ACCELERATED) RECOVERY WELLS. SEVERAL PEOPLE EXPRESSED AN INTEREST IN A PERMANENT REMEDY THAT WOULD ALLOW THE SITE TO BE REUSED.

DURING THE PUBLIC COMMENT PERIOD, THERE WERE COMMENTS/QUESTIONS REGARDING THE FOLLOWING:

COMMENT #1:

WHAT IS THE PROPOSED TIMETABLE FOR THE PROPOSED REMEDY?

EPA RESPONSE: ONCE THE REMEDY IS SELECTED, THE ENGINEERING DESIGNS OR BLUE PRINTS FOR THE ACTUAL REMEDY WILL BE DEVELOPED. THIS IS EXPECTED TO TAKE ABOUT 18 MONTHS. ESTIMATED TIME FOR THE GROUNDWATER CLEANUP IS FROM ONE TO FIVE YEARS, DUE TO THE UNCERTAINTY OF THE EXISTING CONDITIONS AND PUMPING ABILITY. THE INCINERATION PROCESS SHOULD TAKE ABOUT 18 MONTHS ALSO. GROUNDWATER TREATMENT AND INCINERATION WOULD TAKE PLACE SIMULTANEOUSLY.

COMMENT #2

SEVERAL YEARS AGO, A HARD RAIN AND SUBSEQUENT FLOOD CAUSED WATER FROM THE SITE TO OVERFLOW PAST THE RAILROAD TRACKS AND OLD HIGHWAY 10 INTO KEELAND CREEK. THE TREES ALONG THE CREEK DIED. WHAT SAMPLES WERE TAKEN IN THIS AREA AND WILL IT BE CLEANED UP ALSO?
EPA RESPONSE: Trace amounts of the contaminants from Old Midland were found on the south side of Old Highway 10, and soil samples were taken further north of Old Highway 10. The Arkansas Department of Pollution Control and Ecology has further sampled the area in question.

Based on the comments expressed at the public meeting, additional offsite samples were collected. This sampling event included Keeland Creek all the way down to the Petit Jean Wildlife Management Area. Based on the results of this sampling, there is currently no significant downstream migration.

COMMENT #3

Was an Environmental Impact Statement prepared as required by the National Environmental Policy Act (NEPA)?

EPA RESPONSE: not as a separate document. The Remedial Investigation Report, Feasibility Study Report and Record of Decision incorporate the NEPA requirements.

COMMENT #4

Low level toxic chemicals may be present in the discharge water during cleanup and these chemicals could affect the Santa Fe Ridge Waterfowl area. Because of the higher accumulative retention for ducks and other wildlife, the chemicals could enter the foodchain or endanger the area’s habitat. Will EPA monitor the waterfowl and other wildlife during cleanup?

EPA RESPONSE: no monitoring of the wildlife is planned. The water discharged from the site will be treated to meet drinking water standards which will not pose a threat to area ducks or other wildlife.

COMMENT #5

The Santa Fe Ridge Waterfowl area provides habitat needs of wintering waterfowl until nesting migration begins in March, when the impoundment is drained. Will EPA reduce or minimize water discharges into Keeland Creek during the October–March period?

EPA RESPONSE: it is not anticipated that the amount of water discharged into Keeland Creek will harm the needs of any wildlife.

COMMENT #6

Can the Dardanelle Library be included as an official repository for the Old Midland site?

EPA RESPONSE: yes. Copies of the Remedial Investigation/Feasibility Study have been placed in the Dardanelle Library and the library will continue to receive documents regarding Old Midland.

COMMENT #7

Once the cleanup is completed, can the property be used for production and/or will it be returned to the owners?

EPA RESPONSE: site clean-up goals are to reduce contaminant concentration to 1 part per million total pentachlorophenol for the treated surface soils. This is estimated to allow people to participate in any activities on the site for 70 years and have only a 1 in 100,000 chance of contracting cancer.

EPA Remedial Actions do not consider future land use. EPA has not taken title to the property and has not considered how the property will be used, pending completion of the remedial action. The owners, however, are among those "potentially responsible parties" that will be offered the opportunity to execute the chosen remedy under court decree. If EPA and ADPC&E fund the clean-up, those funds can be recovered from the land owners.

COMMENT #8
ONLY A SMALL PORTION OF THE PROPERTY IS CONTAMINATED. COULD THE "NEW MILL" AREA WHICH IS NOT CONTAMINATED BE USED NOW OR WHILE THE CLEANUP IS IN PROCESS?

EPA RESPONSE: NO, THE "NEW MILL" AREA IS CURRENTLY PROJECTED AS THE LOCATION FOR THE THERMAL DESTRUCTION SYSTEM.
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### TABLE 1. MAXIMUM DETECTED CONCENTRATIONS (IN PARTS PER MILLION)

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<th>MEDIA</th>
<th>MAXIMUM PCP</th>
<th>MAXIMUM PNAS</th>
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<tr>
<td>SURFACE SOIL (0-6 IN)</td>
<td>790</td>
<td>14,000</td>
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<tr>
<td>SUBSURFACE SOIL (6-12 IN)</td>
<td>690</td>
<td>220</td>
</tr>
<tr>
<td>DEEPER SOIL (1-20 FT)</td>
<td>0.32</td>
<td>270</td>
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<tr>
<td>DRAINAGEWAY SEDIMENT</td>
<td>9.5</td>
<td>6.6</td>
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<tr>
<td>SURFACE WATER</td>
<td>0.012</td>
<td>NOT FOUND</td>
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<td>GROUNDWATER, OIL PHASE</td>
<td>12,000</td>
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<tr>
<td>LAGOON SLUDGES</td>
<td>5,900</td>
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<tr>
<td>LAGOON FLUIDS</td>
<td>0.6</td>
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**NOTE:** PNAS REFERS TO A WIDE VARIETY OF COMPOUNDS. SOME, SUCH AS PHENANTHENE, ARE NOT HARMFUL. SOME, SUCH AS BENZO(A)ANTHRACENE, ARE CARCINOGENIC.