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Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R08-89/037
May 1990

EPA

Superfund Record of Decision:

Rocky Mountain Arsenal (Operable Unit 17), CO

[redacted]

50272-101

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SUPERFUND RECORD OF DECISION
Rocky Mountain Arsenal (Operable Unit 17), CO
Eighth Remedial Action

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16. Abstract (Limit: 200 words)

The Rocky Mountain Arsenal (RMA) (Operable Unit 17) is a part of the 17,000-acre RMA site, which is a former U.S. Army chemical warfare and incendiary munitions manufacturing and assembly plant in Adams County, Colorado. From the 1950s until late 1969, the U.S. Army used the RMA facility to produce the nerve agent GB (isopropyl methyl-phosphonofluoridate). In addition, between 1947 and 1982, private industries leased major portions of the plant facilities to manufacture various insecticides and herbicides. Since 1970, facility operations have primarily involved the destruction of chemical warfare materials. Because final remediation of the RMA site will take many years to complete, thirteen Interim Response Actions (IRAs) were determined necessary prior to implementing the final remedial action. Operable Unit 17 (CERCLA Wastewater Treatment System) is among those IRAs specified. This ROD addresses the interim remedy to develop and implement a program to treat contaminated wastewaters resulting from the assessment and implementation of response actions at the RMA site. The primary contaminants of concern affecting the wastewaters are VOCs including benzene, PCE, toluene, and TCE; other organics including pesticides; and metals including arsenic, chromium, and lead.

(See Attached Page)

17. Document Analysis a. Descriptors
Record of Decision - Rocky Mountain Arsenal (Operable Unit 17), CO
Eighth Remedial Action
Contaminated Medium: wastewater
Key Contaminants: VOCs (benzene, PCE, toluene, TCE), other organics (pesticides), metals (arsenic, chromium, lead)

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report) None	21. No. of Pages 88
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Abstract (Continued)

and are partly covered with soil or structures. Site investigations by the Army The selected Interim Response Action for this interim remedy includes constructing a centrally located wastewater treatment facility that will consist of a sequence of unit processes including chemical addition/precipitation, filtration, ultraviolet light/chemical oxidation, activated carbon adsorption, air stripping, and an activated alumina treatment process; constructing decontamination pads at both the treatment facility and satellite non-treatment wastewater facilities; constructing five storage tanks with 10,000 to 12,000 gallon capacities; and incorporating offsite discharge of the treated effluent to the sanitary sewer and offsite disposal of treatment facility sludges and residuals. No costs were provided for this remedial action.

PERFORMANCE STANDARDS OR GOALS: Chemical-specific ARARs, based on Colorado Basic Standards for Ground Water (CBSG) and State MCLs, will be applied to the design of the treatment system and include arsenic 50 ug/l (MCL), benzene 5 ug/l (MCL), chromium 50 ug/l (MCL), lead 50 ug/l (MCL), PCE 10 ug/l (CBSG), toluene 2,420 ug/l (CBSG), and TCE 5 ug/l (MCL).

ROD - MAY 14, 1990 T1018
O. U. 17
ROCKY MTN. ARSENAL, C-O

U.S. ARMY
MATERIEL COMMAND

— COMMITTED TO PROTECTION OF THE ENVIRONMENT —

PROJ: 7777-198 PILB: RT ARMY 6392
DOC: DATE: 04/01/90 ENTRY DATE: 08/03/90
DOC CONT #: 7760-009-RT-BHKS
DESC-(BBCAMB FINAL ON 7/1/90) DD CERC
LA WASTEWATER TREATMENT SYSTEM IRA

REQUESTS FOR COPIES OF THIS DOCUMENT SHOULD BE REFERRED TO THE PROGRAM MANAGER FOR THE ROCKY MOUNTAIN ARSENAL.

RCD 5/14/90

FINAL DECISION DOCUMENT FOR THE CERCLA WASTEWATER TREATMENT SYSTEM INTERIM RESPONSE ACTION AT THE ROCKY MOUNTAIN ARSENAL

C.U. 17

JULY 1990

PREPARED FOR:

U.S. ARMY PROGRAM MANAGER'S OFFICE FOR

ROCKY MOUNTAIN ARSENAL

ROD- 5/17/90

PROGRAM MANAGER
RMA CONTAMINATION CLEANUP

U.S. ARMY
MATERIEL COMMAND

— COMMITTED TO PROTECTION OF THE ENVIRONMENT —

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T SYSTEM IRA

Draft Final Decision Document for the CERCLA Wastewater Treatment System Interim Response Action at the Rocky Mountain Arsenal

O.U. 17

April 1990

Prepared For:

U.S. Army Program Manager's Office For

Rocky Mountain Arsenal Contamination Cleanup

The use of trade names in this report does not constitute an official endorsement or approval of the use of such commercial products. The report may not be cited for purposes of advertisement.

DEPARTMENT OF THE ARMY
PROGRAM MANAGER FOR ROCKY MOUNTAIN ARSENAL
COMMERCE CITY, COLORADO 80022-2180

April 5, 1990

REPLY TO
ATTENTION OF:
Interim Response Division

Mr. Connally Mears
U.S. Environmental Protection Agency
Region VIII
One Denver Place
Suite 801
999-18th Street
Denver, Colorado 80202-2405

Dear Mr. Mears:

Enclosed for your review is the Draft Final Decision Document for the CERCLA Wastewater Treatment System Interim Response Action (IRA) at Rocky Mountain Arsenal.

Following consideration of all comments received during the public comment period from December 29, 1989, through January 30, 1990, the Army has revised the Decision Document for the CERCLA Wastewater Treatment System IRA accordingly.

Organizations with standing to invoke the dispute resolution process should advise me in writing by close of business April 30, 1990, if they wish to invoke the procedures for dispute resolution.

Unless dispute resolution is invoked on or before April 30, 1990, the Army will consider the Draft Final Decision Document for the CERCLA Wastewater Treatment System IRA to be the Final Decision Document on May 1, 1990.

Sincerely,

DISTRIBUTION:

Donald L. Campbell
Deputy Program Manager

Enclosure
FILE

Copies Furnished:

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DRAFT FINAL DECISION DOCUMENT FOR THE CERCLA WASTEWATER TREATMENT SYSTEM INTERIM RESPONSE ACTION AT THE ROCKY MOUNTAIN ARSENAL

1.0 INTRODUCTION

The Interim Response Action (IRA) for the CERCLA Wastewater Treatment System (CWTS) at Rocky Mountain Arsenal (RMA) is being conducted as part of the IRA Process for RMA in accordance with the June 5, 1987 report to the court in United States v. Shell Oil Co., the proposed Modified Consent Decree dated June 7, 1988, and the Federal Facility Agreement dated February 17, 1989.

The Federal Facility Agreement states that this IRA for the CERCLA Wastewater Treatment System is necessary and appropriate for ". . . development and implementation of a program to treat wastewater resulting from the assessment and implementation of response actions for the site (e.g., treatment of wastewater) from the Arsenal laboratory and treatment of decontamination water prior to their discharge into the Arsenal sanitary sewer, or development of other appropriate measures for the disposal or reuse of such water." The two basic approaches considered to meet the Federal Facility Agreement are to modify the existing South Plants Treatment System and to build a new treatment facility.

Alternatives for improvement of the CWTS have been reviewed based on technical feasibility, compliance to the maximum extent practicable with applicable or relevant and appropriate requirements (ARARs), potential to be expanded and/or modified for incorporation into the Final Response Action, cost-effectiveness among alternatives affording equivalent levels of protection, and capability to be readily implemented.

After the alternatives were reviewed according to the criteria listed above, a new CERCLA wastewater treatment system was chosen as the best solution for this IRA.

2.0 BACKGROUND

Rocky Mountain Arsenal occupies over 17,000 acres (approximately 27 square miles) in Adams County, directly northeast of metropolitan Denver, Colorado (see Figure 1). The RMA property was purchased by the U.S. Government in 1942 for the purpose of producing chemical weapons and conventional munitions for the Second World War. Between 1953 and 1957, GB nerve agent was produced. Munitions continued to be filled with GB at RMA until approximately 1969. From the late 1950's to the mid-1960's, RMA was primarily engaged in various demilitarization programs. Since 1970, the primary mission of RMA has been the disposal of chemical warfare material. In addition to these military activities, a major portion of the plant facilities were leased to private industries (including Shell Chemical Co.) beginning in 1946 for the manufacture of various insecticides and herbicides. The current mission of RMA is contamination cleanup; there is no operational mission. This cleanup process is expected to last into the next decade.

On June 5, 1987 the Army, the Environmental Protection Agency, the State of Colorado and Shell Oil Company agreed to conduct certain Interim Response Actions at the Rocky Mountain Arsenal.

On February 1, 1988, a proposed Consent Decree was lodged in the U.S. v. Shell Oil Company with the U.S. District Court in Denver, Colorado. The proposed Consent Decree was revised after public comments were received, and a modified proposed Consent Decree was lodged with the Court on June 7, 1988. The Army and Shell Oil Company agreed to share costs of the cleanup that was to be developed and performed under the oversight of the EPA, with numerous opportunities for comment by the State of Colorado. A Federal Facility Agreement was executed between the Army, Shell Oil Company, EPA, the Department of Justice, the Agency for Toxic Substances and Disease Registry, and Department of Interior on February 17th, 1989. The long-term cleanup is a complex task that will take many years to complete. The modified Consent Decree and Federal Facility Agreement specify thirteen Interim Response Actions (IRAs) whose implementation has been determined to be necessary prior to implementation of the final remedial plan. This IRA is among those specified.

In accordance with the Federal Facility Agreement, an IRA assessment was conducted between July 1988 and May 1989. That study resulted in the submission of the CERCLA Wastewater Treatment System Assessment (Waterway Experiment Station, 1989). The report evaluated unit process additions to the existing South Plants water treatment system and possible locations for the construction of a new system.

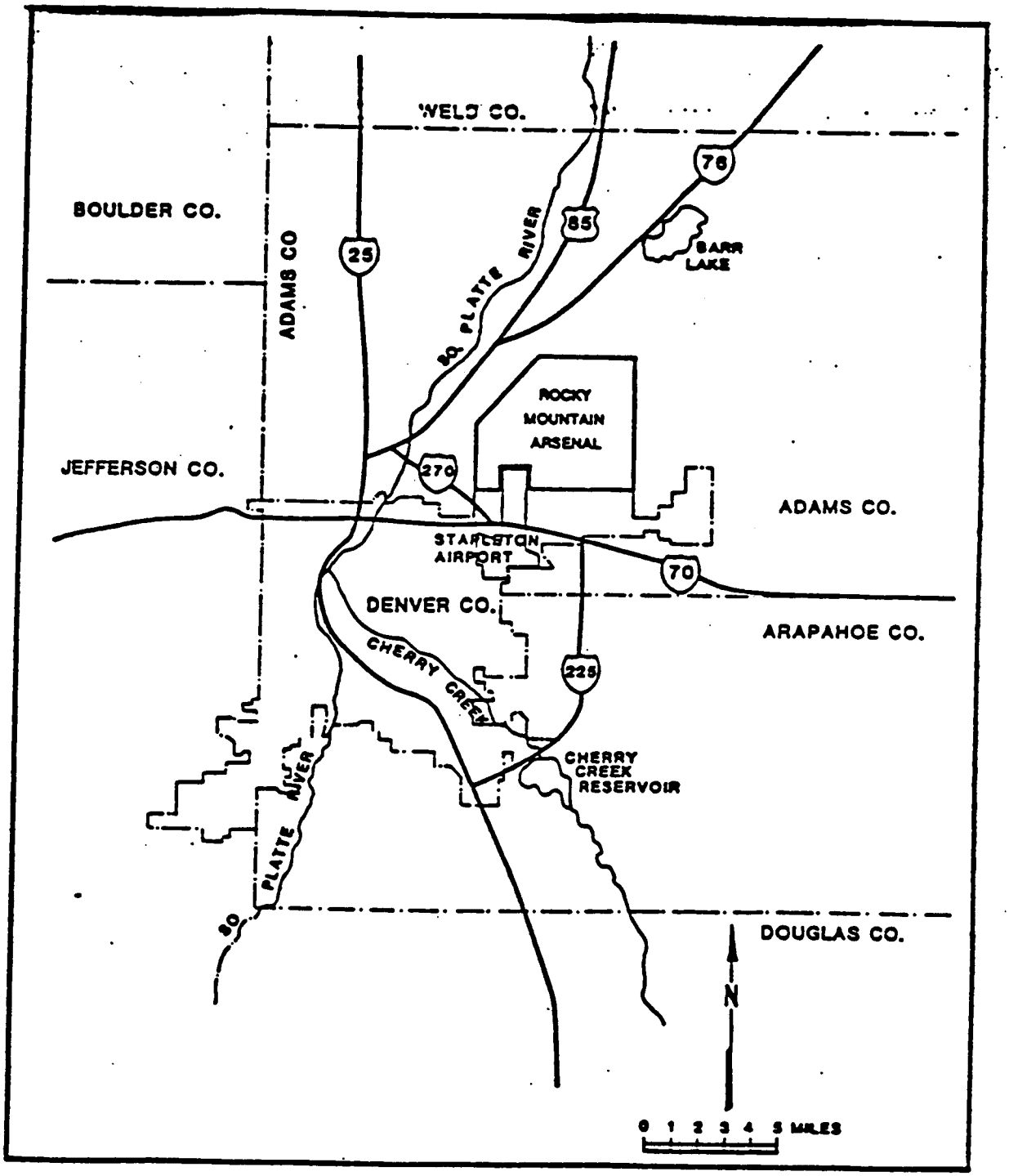

FIGURE 1
ROCKY MOUNTAIN ARSENAL LOCATION

3.0 INTERIM RESPONSE ACTION OBJECTIVES

The goal of the CERCLA wastewater treatment system IRA is to develop and implement a program to treat contaminated wastewaters resulting from the assessment and implementation of response actions at the RMA.

The following specific objectives for this IRA have been selected based on the CERCLA Wastewater Treatment System Assessment (Waterways Experiment Station, 1989).

- Expand the volume of wastewater that can be treated beyond that of existing capacities, to at least 150,000 gallons per month.
- Increase the variations of wastewater quality that can be treated with a variety of unit process operations capable of operating in either a batch or continuous mode, configured such that they can be brought on-line as needed to treat mixtures or specific wastewaters.
- Include storage capacity sufficient to contain one month's treatment needs.
- Select optimum siting of the treatment plant so as to provide maximum utility throughout RMA.
- Reduce the amount of generated wastes to a minimum.

CERCLA IRA criteria considered in evaluating alternatives to achieve the above mentioned goal include:

- Short- and long-term effectiveness;
- Protection of human health and the environment;
- Reduction of mobility, toxicity, or volume;
- Compliance with ARARs to the maximum extent practicable;
- Implementability;
- Cost-effectiveness.

4.0 INTERIM RESPONSE ACTION ALTERNATIVES

The CWTS IRA was originally conceived to consist of assessments of process treatment system alternatives that could be added to the existing South Plants water treatment system. During the drafting of the CERCLA Wastewater Treatment System Assessment (Waterways Experiment Station, 1989), plans to close the South Plants area resulted in a modification of the assessment to include the alternative of a new system sited outside of the South Plants area.

The basic alternatives for system modification and improvement were considered, including possible unit process additions to the existing treatment system.

The alternatives identified in the CERCLA Wastewater Assessment were evaluated based upon the extent to which they meet the IRA objectives and CERCLA IRA criteria.

4.1 NO ACTION ALTERNATIVE

- The South Plants treatment system has a decreased flow rate (about two gallons per minute), and the Army has decided to close the South Plants Area. Since IRA activities are expected to generate substantial quantities of wastewaters, the need for an increased capacity of wastewater treatment exists. Therefore, the no action alternative is eliminated as a valid option for meeting the IRA goal as measured by the criteria of long-term effectiveness and protection of human health and the environment.

4.2 MODIFICATION OF THE EXISTING SYSTEM

Although the South Plants Area is scheduled to be closed, special provisions could be made for continued operation of the South Plants treatment system in its present location. This alternative was evaluated and eliminated as a valid option for the following reasons:

- In order to provide the additional unit processes and liquid storage capacity needed to adequately treat CERCLA wastewaters, a new building and modifications to the existing building would have to be installed. Soil would be disturbed and substantial construction activity would occur within the South Plants area. The existing building and equipment would have to be decontaminated in order to install new equipment and to renovate existing equipment. Thus, this alternative ranks low

against the criteria of protectiveness of human health and the environment.

- Prior to implementing this option, the types and level of contaminants in soil and on the existing building and equipment would have to be characterized so as to prevent the spread of contamination and to protect the health and safety of workers. This will be done prior to final remediation of the South Plants. However, it is not planned to be done in a time frame suitable for implementation of this IRA. If the site characterization were accelerated, it would still delay implementation of this IRA compared to the alternative of constructing a new treatment facility at a site known to be uncontaminated. Thus, this alternative also ranks low against the criteria of implementability.

- The CERCLA Wastewater Treatment System will likely be one of the last facilities to be decommissioned as part of the RMA Final Remedial Action. Utilities (electricity, water supply, and a new connection to the sanitary sewer) will have to be maintained, and access to the facility will have to be ensured. Its continued use could interfere with interim and final measures to decontaminate the South Plants area.

- By not selecting this alternative, the full salvage value of the existing building, equipment, and tankage will not be recovered. However, the exiting facility's salvage value is substantially offset by the cost of a new sewer line that would be needed in this alternative to connect the existing treatment plant to the sanitary sewer (see "Final Decision Document for the Sanitary Sewer System Interim Response Action at Rocky Mountain Arsenal", April, 1989). Thus, this alternative is not considered cost-effective.

4.3 NEW SYSTEM LOCATION AND CONFIGURATION

- A new centralized facility, located out of the South Plants, for treatment of all wastewater at RMA is a cost effective alternative to many treatment facilities located near the site of individual remedial actions. In addition, the proposed decontamination pad for the South Plants system should be relocated adjacent to the CWTS.

- Satellite Decontamination Pads still may be required and constructed at specific remedial actions. The use of

satellite decon pads reduces the transport of contaminated equipment throughout the base.

- Additional storage capacity in the form of five tanks, each with a 10,000 to 12,000 capacity, would allow for segregation of wastewaters requiring individual batch treatments or for temporary storage of wastewaters awaiting test results. These tanks would be in addition to the 150,000 gallon backup storage capacity needed for the plant.

4.4 UNIT PROCESS ALTERNATIVES

The CERCLA Wastewater Treatment System Assessment identified three possible unit process additions to the South Plants treatment system or to be included in a new CWTS:

- Chemical oxidation was proposed as a potential unit process alternative to reduce loading on the activated carbon units. The cost-effective advantage of this option is that no contaminated residue requiring disposal is produced.

- Chemical precipitation/sedimentation was proposed to reduce heavy metal concentrations known to be in some wastewaters at RMA. These metals could potentially interfere with and reduce the effectiveness of the organic removal process.

- A biological remediation step was considered as a possible addition to the treatment system. However, problems associated with non-continuous flow, susceptibility to contaminants, or shock loading seem insurmountable in the sustenance of a biological population.

5.0 CHRONOLOGY OF EVENTS

The significant events pertaining to the CWTS Interim Response Action are presented below.

Date	Event
1979	170,000 gallon tank installed. Called the South Plants Liquid Wastes Collection System. Originally designed to collect liquids from laundry (Bldg 314) and two labs (Bldgs 313 and 743), but the laundry never disposed of liquids to the tank.
December 1981	Stopped using the chemical sewer from South Plants area to Basin F. Liquids from labs then went to the 170,000 gallon tank.
April 1982	South Plants Liquid Treatment System installed, consisting of a filter, granular activated carbon unit, and activated alumina unit. Originally designed for gravity driven fluid flow.
May 1982	Chemical sewer removal between the South Plants area and Basin F began.
June 1987	State of Colorado, Shell Oil Company, U.S. Environmental Protection Agency and U.S. Army agreed that certain Interim Response Actions would be conducted.
February 1988	Proposed Consent Decree (1988) lodged in the case of U.S. v. Shell Oil Company with the U.S. District Court in Denver, Colorado. The Consent Decree specified thirteen interim actions, including this IRA, to facilitate remediation activities.
March 1988	Air Stripper and pump installed on the existing South Plants treatment system. Pump allowed an increased flow rate of two to five gallons per minute.
July 1988 to May 1989	CERCLA Wastewater Treatment System Assessment performed (Waterways Experiment Station, 1989).

Late 1988	Peroxidation Systems, Inc., ultraviolet/chemical oxidation unit brought in to test CERCLA liquid wastewaters from all over the Arsenal. The system was only used for the tests and is not being used to treat lab waters.
February 1989	Federal Facility Agreement signed.
July 1989	Draft ARARs completed by the Army and sent to relevant agencies for comment.
August 1989	Comments on Draft ARARs received from the EPA, State, and Shell.
October 1989	Revised Draft Assessment completed by the Army and sent to relevant agencies for review and comment.
November 1989	Comments on the Revised Draft Assessment received from the EPA, State, and Shell.
December 1989	Proposed Decision Document completed by the Army and issued to relevant agencies for review and comment.

6.0 SUMMARY OF THE INTERIM RESPONSE ACTION PROJECT

Construction of a new wastewater treatment facility and colocated decontamination pad is the selected alternative for the CWTS Interim Response Action. This system is intended to potentially treat all RMA CERCLA associated wastewaters, except for those treated by the Hydrazine Blending and Storage Facility IRA treatment systems. The decisive advantages of this approach over the No Action and Modification of the Existing System Alternatives are that it will not interfere with future remedial actions in the contaminated South Plants area, and it will provide the most expeditious means of attaining treatment objectives. (See Section 8.3.1, "Ambient or Chemical-Specific ARARs.) Specific modifications and additional details dependent upon design analysis will be determined during the IRA final design and discussed in the Draft Implementation Document.

6.1 SELECTED ALTERNATIVES

The following concept for the CERCLA Wastewater Treatment System is planned for implementation:

- A new, centrally located wastewater treatment facility and decontamination pad will be constructed. Additional decontamination pads will be constructed at satellite non-treatment wastewater facilities to reduce the movement of contaminated trucks and equipment over long distances. Each decontamination pad will consist of a wash rack with a curbed concrete floor, a sump with steel grating cover, and associated spray washing equipment.

- The new water treatment facility will be constructed at an uncontaminated location outside the South Plants Area since the Army's future plans for this area involve its closure. The location for a new treatment facility will likely be along "D" street, near the center of the Arsenal.

- In addition to the 150,000 gallon storage capacity needed for a treatment system, five tanks will be constructed with 10,000 to 12,000 gallon capacities. These tanks will be used for segregation of wastewaters requiring special treatment and for temporary storage while awaiting test results.

A particular sequence of unit processes will be developed during the Design Phase for this IRA. The following unit process operations will be used at the water treatment facility:

- Chemical addition/precipitation to provide for clarification of wastewaters containing fine suspensions and removal of heavy metals which might interfere with the organic removal process. Sludge will be stabilized by dewatering or solidification, depending upon the type of sludge generated. Solidification may be accomplished using a simple barrel mixing system in which the sludge and additives are mixed and allowed to cure in a drum. Storage capacity will be required to allow for analysis and accumulation of adequate volumes for cost-effective transportation and disposal in accordance with EPA criteria.

- Filtration of wastewaters to minimize or eliminate residual waste. Filtration will likely be accomplished using bag filters instead of a multi-media filter to minimize the generation of additional wastewater. Filters will periodically be washed, and the resulting residue will be combined with the precipitator sludge. Duplicate units, each rated to handle the anticipated treatment rate, will be included in the system to allow for maintenance and replacement of filter bags without interruption to operations.

- Ultraviolet light/chemical oxidation potentially may be used before other organic treatment processes to reduce the organic loading on that removal process (i.e., granular activated carbon systems and air stripping process) or serve as a polishing process. This process does not generate any residue requiring further treatment.

- Activated carbon adsorption. This will be used to remove almost all organics with the possible exception of those volatile compounds which are not well-adsorbed by carbon. Waste carbon will be transported offsite and disposed of. Conceptually, this step will require two carbon-adsorber columns, each capable of handling the approximate treatment rate. Used in parallel, maintenance, inspection, and replacement of carbon can be conducted without an interruption of operations. When required, these columns can also be operated in series mode to increase contact time with the influent. Storage bins for fresh and spent carbon will be an integral part of the treatment system; annual carbon usage should not exceed 5000 lbs per year.

- Air stripping can be used to remove any of the residual volatile organics surviving carbon adsorption treatment. Stack gas monitoring will be required to verify

compliance with air quality emission standards. Contaminated residue may or may not be produced by this process, depending upon the need for vent gas control. The existing air stripper at the South Plants may be sufficient for this purpose and, if so, will be relocated to the new treatment system.

- An activated alumina treatment process will be used for wastewater contaminated with fluoride, arsenic, and other potential contaminants as determined practical. Activated alumina will be used in an adsorption column similar to the carbon adsorption columns. Spent activated alumina will be managed offsite in accordance with EPA criteria.

- After receipt of analytical test results which confirm completion of treatment, discharge of that effluent batch to the sanitary sewer is appropriate. However, provisions will be made to route effluent from the treatment system into storage tanks should additional testing or treatment be needed, in which case this step will be repeated.

- The Army will utilize offsite disposal for management of CERCLA treatment facility sludges and residuals generated by its operation in accordance with EPA criteria.

6.2 HEALTH AND SAFETY PLAN

A site-specific Health and Safety Plan for work to be performed on the CERCLA Wastewater Treatment System will be developed and included in the Implementation Document. This site-specific plan will contain the details of monitoring plans, worker protection and work modifications to be conducted in the event that certain levels of contaminants are detected or if necessary to ensure worker health and safety.

Analysis to determine any potential health risks to offsite populations will also be conducted and an IRA contingency plan developed to provide for notification and appropriate response by the Army and other agencies to any health threat that potentially may arise during operation of the IRA treatment system.

7.0 IRA PROCESS

With respect to this IRA for the CWTS, the IRA process is as follows:

1. Within 20 days after issuance of the Draft Final Decision Document for the CWTS IRA, an organization (including the State if it has agreed to be bound by the Dispute Resolution process, as required by the Federal Facility Agreement, or DOI under the circumstances set forth in the Federal Facility Agreement) may invoke Dispute Resolution.

2. After the close of the period for invoking Dispute Resolution (if Dispute Resolution is not invoked) or after the completion of Dispute Resolution (if invoked), the Army shall issue a Final Decision Document for the CWTS IRA with the supporting administrative record. Thereafter, the Decision Document will be subject to judicial review in accordance with Sections 113 and 121 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, 42 U.S.C. Sections 9613, 9621.

3. Following issuance of the Final IRA Decision Document, the United States Army shall be the Lead Party responsible for designing and implementing the IRA in conformance with the Decision Document. The Army shall issue a Draft IRA Implementation Document to the DOI, the State, and the other organizations for review and comment. This Draft Implementation Document shall include final drawings and specifications, final design analyses, a cost estimate, and a schedule for implementation of the IRA.

4. As Lead Party for design and implementation of this IRA, the Army will issue the Final Implementation Document, as described above, and will be responsible for implementing the IRA in accordance with the IRA Implementation Document.

8.0 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS FOR THE CERCLA WASTEWATER TREATMENT SYSTEM INTERIM RESPONSE ACTION

8.1. AMBIENT OR CHEMICAL-SPECIFIC ARARS

Ambient or chemical-specific requirements set concentration limits or ranges in various environmental media for specific hazardous substances, pollutants, or contaminants. Such ARARs either set protective clean-up levels for the chemicals of concern in the designated media or indicate an appropriate level of discharge.

The objectives of this IRA are discussed in the Assessment Document. This IRA will be implemented prior to the final remediation to be undertaken in the context of the Onpost Operable Unit ROD. The list of specific contaminants has been compiled based upon treatability test data and represents those contaminants likely to be contained in the system influent. The media of concern here is the wastewater treated by the proposed IRA system. This proposed IRA treatment system will discharge treated effluent to the sanitary sewer for eventual release after further treatment within the RMA sewage treatment plant (STP). Discharges from the STP are strictly regulated by the RMA NPDES Permit (currently under revision) and must attain the specific limitations contained in that permit prior to release from RMA. The ARARs listed below will apply at the point of release from the CERCLA Wastewater Treatment System (CWTS) IRA.

The current South Plants Wastewater Treatment Facility (SPWTF) will continue to be operated prior to the implementation of the new system pursuant to this IRA. The SPWTF will be subject to and comply with the chemical-specific ARARs identified below and will attain these limitations to the maximum extent practicable. The Army has been conducting continuous sampling and analyses of this system and it has been performing well. Due to recently promulgated standards being slightly lower than detection limits of the RMA laboratory, the Army will arrange, as soon as practicable, for confirmatory analyses to be done on future SPWTF effluent by contract laboratories which are certified at lower detection limits so that attainment of these ARARs can be verified.

Because this treatment system will not provide drinking water and is not a public water system, the standards established under the Safe Drinking Water Act (SDWA) and the Clean Water Act (CWA) for drinking water are not applicable to this IRA.

The standards contained in 40 CFR Section 264.94 were not considered applicable to this treatment system because the constituents in the influent are not from regulated units. Since

the standards promulgated pursuant to this regulation are identical to those promulgated under the National Primary Drinking Water Regulations (NPDW) pursuant to the SDWA, further discussed below, for the same 14 compounds these standards are not considered further.

Consistent with the most recent EPA guidance, the National Contingency Plan (NCP), 55 Fed. Reg. 8666, Maximum Contaminant Level Goals contained in the NPDW are not considered either applicable or relevant and appropriate to apply in the context of this treatment system. EPA's Tolerances for Pesticide Chemicals on or in Raw Agricultural Commodities (TPCRAC), 40 CFR Part 180 and the Food and Drug Administrations Tolerances for Pesticides in Food administered by EPA (TPF) are not relevant and appropriate to apply in the context of this IRA. These standards were developed for particular items (e.g., food and crops) which are not subject to watering with the effluent from this treatment system, which must pass through the STP and is subject to the limitations of the NPDES permit prior to release from RMA.

The Colorado Basic Standards for Groundwater (CBSG) were reviewed and are not considered applicable to the discharge from this IRA treatment system, consistent with current EPA guidance as contained in the NCP. These standards were developed for groundwater and are not appropriate to apply to the effluent discharged from this treatment system into the sanitary sewer for transport to the STP. However, the numerical standards contained in these recently revised regulations were considered relevant and appropriate to apply to this IRA treatment system in order to protect potentially impacted groundwater. The policy stated in Section 3.11.5.C.4 was followed concerning stated detection limits.

The Colorado Basic Standards and Methodologies for Surface Water 3.1.0 (5 CCR 1002-8) (CBSM) were reviewed and not considered applicable to this IRA treatment system, which does not discharge effluent into surface waters. The effluent from this IRA treatment system receives further treatment at the RMA Sewage Treatment Plant prior to discharge to First Creek. These standards, however, are considered relevant and appropriate to apply to this IRA treatment system. The Army has selected the standards at 3.1.11, Table C and the Agricultural standards from Tables II and III, for compounds anticipated to be in the effluent as relevant and appropriate due to First Creek's designation as Class 2 recreation, Class 2 warm water aquatic life and Agricultural waters. The policy contained in CBSM 3.1.14(9) was followed concerning stated detection limits.

Federal Water Quality Criteria (FWQC) were reviewed and considered not applicable to this IRA since they are guidelines and not enforceable limitations. This IRA will discharge into the sanitary sewer from transport to the RMA STP for further treatment.

The discharge from the STP is limited by the effluent limitations contained in the NPDES permit, which are developed to protect the uses of the waterways receiving the discharge. Consistent with the Proposed NCP, recent information concerning compounds for which FWQC exist was reviewed, including Reference Doses (RfD) and Unit Risk (UR) information, to determine whether more current data exists than that reflected in the FWQC. Consistent with the Proposed NCP, the more recent data was utilized and constituted "To Be Considered" (TBC) standards. Under these circumstances, FWQC were not considered relevant and appropriate to apply in the context of this IRA where more recent data existed from which a TBC could be determined.

In order to provide adequate protection of public health and the environment, the Army has determined that Maximum Contaminant Levels (MCLs) established under the Safe Drinking Water Act are relevant and appropriate to apply within the context of this IRA. The Army has also determined that the pretreatment standards of 40 CFR § 403.5 issued pursuant to the Clean Water Act are relevant and appropriate to apply in the context of this IRA. The Army believes that these limitations, in conjunction with the identified standards from the CBSM and CBSG, will protect the functioning of the STP and result in an effluent which does not represent a potential risk to human health and the environment. This effluent will then be further treated at the RMA STP, in conjunction with other influent streams, and be released pursuant to the NPDES permit.

Several compounds, at present, only have MCLs proposed or have other health effects information with a high degree of creditability available which does not come within the definitions of applicable or relevant and appropriate requirements. These, while not ARARs, are considered in the design of the system. These compounds are listed separately as TBCs, consistent with the NCP. For some compounds, no ARAR or TBC standard was identified. These compounds include Bicycloheptadiene, p-chlorophenylmethyl sulfur compounds, Dithiane, Dimethyldisulfide, Flouroacetic Acid, Isodrin, Malathion, Oxathiane, Thiodiglycol, Supona, and Vapona. In order to be protective, the Army will apply any Remedial Action Objectives later developed in the Final Offpost EA/FS report to the extent practicable to these compounds.

The chemical-specific ARARs determined relevant and appropriate to apply in the context of this IRA are:

Compound	ARAR Level		Source
Acrylonitrile	2,600	ug/l	CBSM
Aldrin	0.1	ug/l	CBSG
Arsenic	50	ug/l	40 CFR § 141.11(b)
Benzene	5	ug/l	40 CFR § 141.61(a)
Cadmium	10	ug/l	40 CFR § 141.11(b)
Carbon Tetrachloride	5	ug/l	40 CFR § 141.61(a)
Chlordane	0.1	ug/l	CBSM
Chloride	250,000	ug/l	CBSG
Chlorobenzene	300	ug/l	CBSG
Chloroform	100	ug/l	40 CFR § 141.12
Chromium	50	ug/l	40 CFR § 141.11(b)
Copper	200	ug/l	CBSM
DDT	0.1	ug/l	CBSM
DDE	0.1	ug/l	CBSM
1,4-Dichlorobenzene	75	ug/l	CBSG
1,2-Dichloroethane	5	ug/l	40 CFR § 141.61 (a)
1,1-Dichloroethylene	7	ug/l	CBSG
Trans-1,2-Dichloroethylene	7	ug/l	40 CFR § 141.61(a)
1,2-Dichloropropane	6	ug/l	CBSG
Dieldrin	0.1	ug/l	CBSG
Endrin	0.1	ug/l	CBSM
Ethylbenzene	680	ug/l	CBSG
Fluoride	2,000	ug/l	CBSM
Hexachlorocyclopentadiene	49	ug/l	CBSG
Lead	50	ug/l	40 CFR § 141.11(b)
Mercury	2	ug/l	40 CFR § 141.11(b)
Parathion	0.3	ug/l	CBSM
Tetrachloroethylene	10	ug/l	CBSG
Toluene	2,420	ug/l	CBSG
1,1,1-Trichloroethane	200	ug/l	40 CFR § 141.61(a)
1,1,2-Trichloroethane	28	ug/l	CBSG
Trichloroethylene	5	ug/l	40 CFR § 141.61(a)
Vinyl Chloride	2	ug/l	40 CFR § 141.61(a)
Zinc	2,000	ug/l	CBSM

The following standards are TBCs and may be considered in the design of this treatment system in conformance with CERCLA, the Federal Facility Agreement and the National Contingency Plan and sought to be attained, if practicable:

Compound	TBC Level		Source
Aldrin	0.002	ug/l	EPA UR (10(-6))
Atrazine	3	ug/l	54 FR 22093
Cadmium	5	ug/l	54 FR 22093
Chlordane	2	ug/l	54 FR 22093
Chloroacetic Acid	70	ug/l	EPA RfD

Chloroform	6 ug/l	EPA RfD
Copper	1,300 ug/l	53 FR 31516
DDT	0.1 ug/l	EPA UR (10(-6))
1,2-Dibromo-3-chloropropane	0.2 ug/l	54 FR 22093
1,1-Dichloroethane	0.4 ug/l	EPA UR (10(-6))
1,1-Dichloroethylene	0.06 ug/l	EPA UR (10(-6))
Dicyclopentadiene	1,050 ug/l	EPA RfD
Dieldrin	0.002 ug/l	EPA UR (10(-6))
DIMP	600 ug/l	EPA Health Advisory (Dec 88)
Ethylbenzene	700 ug/l	54 FR 22093
IMPA	16,800 ug/l	USABRDL Tech. Rep. 8302 (Oct 84)
Lead	5 ug/l	53 FR 31516
Methylene Chloride	4.8 ug/l	EPA RfD
Methylisobutyl ketone	1,750 ug/l	EPA RfD
Parathion	210 ug/l	EPA RfD
Tetrachloroethylene	5 ug/l	54 FR 22093
1,1,2-Trichloroethane	0.6 ug/l	EPA UR (10(-6))
Toluene	2,000 ug/l	54 FR 22093
Xylenes (Total)	10,000 ug/l	54 FR 22093
Zinc	7,000 ug/l	EPA RfD

Air Emissions

The standards contained at 40 CFR Part 50 were reviewed and determined to be neither applicable nor relevant and appropriate to this IRA. These standards apply to Air Quality Control Regions (AQCR), which are markedly dissimilar from the area that may be affected by the operation of an air stripper during treatment by this IRA system. The compounds to be treated by this IRA treatment system are markedly dissimilar to the criteria pollutants regulated by 40 CFR Part 50 and these ambient air standards are neither designed for nor normally applied to specific emissions sources such as an air stripping system, making these standards inappropriate to apply in the context of this IRA. While these standards do not apply to the specific emissions from the IRA treatment system, the system will be controlled and monitored so that emissions from it do not cause exceedances of ambient air standards in the AQCR.

The standards contained at 40 CFR Parts 60 and 61 were reviewed and determined not to be applicable to air stripper operations conducted as part of the treatment by this IRA system. These standards apply to specific sources of the listed pollutants. For example, Subpart E of 40 CFR Part 61 applies to sources which process mercury ore to recover mercury and other specific processes, Subpart J of this Part applies to sources which include equipment which contains or contacts a fluid that is at least 10 percent benzene by weight and the arsenic provisions of Subparts

N, O and P of this part apply to very specific plants, smelters or facilities. Since the air stripper operations contemplated by this IRA treatment system are extremely dissimilar from the processes described in 40 CFR Part 61 and the liquid concerned is also extremely dissimilar to the liquid described in Subpart J of 40 CFR Part 61, these standards were also not considered to be relevant and appropriate to apply to this IRA treatment system. However, as discussed in Section 3 concerning action-specific ARARs, the Army will apply best practicable control technology to air stripper emissions.

The provisions contained in 40 CFR Part 60, Subpart Kb will be considered relevant and appropriate to apply to any storage vessels with a capacity greater than or equal to 40 cubic meters that is used to store volatile organic liquids in the context of this IRA. Only limited provisions of this Subpart affect storage vessels with a design capacity of less than 75 cubic meters.

The policy contained in OSWER Directive 9355.0-28, dated June 15, 1989 is a TBC for the operation of any air stripper in the context of this IRA.

The provisions of 5 CCR 1001-10, Regulation 8, Section IV concerning mercury emissions, limiting such emissions to 2300 grams/five pounds per day, are considered relevant and appropriate to apply to this treatment system.

8.2. LOCATION-SPECIFIC ARARS

Location-specific requirements set restrictions on activities, depending on the characteristics of the site or the immediate environment, and function like action-specific requirements. Alternative remedial actions may be restricted or precluded, depending on the location or characteristics of the site and the requirements that apply to it.

Paragraph 44.2 of the Federal Facility Agreement provides that "wildlife habitat(s) shall be preserved and managed as necessary to protect endangered species of wildlife to the extent required by the Endangered Species Act (16 U.S.C. 1531 et seq.), migratory birds to the extent required by the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.), and bald eagles to the extent required by the Bald Eagle Protection Act, 16 U.S.C. 688 et seq."

While this provision is not an ARAR, the statutes cited therein are ARARs, applicable to this IRA and will be complied with. Based on where this treatment system will be located the Army believes that this IRA will have no adverse impact on any endangered species or migratory birds or on the protection of wildlife habitats. Coordination will be maintained with the U.S.

Fish and Wildlife Service to ensure that no such adverse impact arises from implementation of this IRA.

The provisions of 40 CFR 6.302(a) and (b) regarding construction that would have an adverse impact on wetlands or be within a flood plain are considered relevant and appropriate to apply in the context of this IRA. Based upon where this system will be located the Army believes that there will be no adverse impact on wetlands from the construction of this system. Coordination will be maintained with the U.S. Fish and Wildlife Service to ensure that any such adverse impacts are avoided or mitigated.

The regulations at 40 CFR 230 were reviewed and determined not to be applicable within the context of this IRA because on discharge of dredged or fill material into waters of the United States is contemplated. Because these regulations address only the disposal of such materials into waters of the United States, which is not contemplated, they are not considered to be relevant and appropriate to apply in the context of this IRA.

The regulations at 33 CFR 320-330 were reviewed and determined to be neither applicable nor relevant and appropriate because the IRA treatment system does not involve any of the activities, or similar to the activities, intended to be controlled by these regulations as defined in 33 CFR §320.1(b).

8.3 ACTION-SPECIFIC ARARS

Description

Performance, design, or other action-specific requirements set controls or restrictions on activities related to the management of hazardous substances, pollutants, or contaminants. These action-specific requirements may specify particular performance levels, actions, or technologies as well as specific levels (or a methodology for setting specific levels) for discharged or residual chemicals.

Construction of Treatment System

Air Emissions

On the remote possibility that there may be air emissions during the course of the construction of this treatment system, the Army has reviewed all potential ambient or chemical-specific air emission requirements. As a result of this review, the Army found that there are, at present, no National or State ambient air quality standards currently applicable or relevant and appropriate

to any of the volatile or semivolatile chemicals in the ground water found in the area in which construction is contemplated.

In the context of this IRA, there is only a very remote chance of any release of volatiles or semivolatiles and, even if such a release did occur, it would only be intermittent and of very brief duration (because the activity that produced the release would be stopped and modified appropriately if a significant air emission was detected by the contractor's air monitoring specialist). The Army has significant experience with the construction of extraction and reinjection wells and has not experienced any problems from air emissions during construction of such facilities. This IRA does not contemplate construction of wells, therefore almost eliminating any chance of air emissions during construction. The construction of facilities, including any decontamination pads, is not expected to involve excavation at depths which could result in release of volatile organics, making any ambient air quality standards neither relevant nor appropriate to this construction activity. Monitoring will be conducted pursuant to the site-specific Health and Safety Plan to ensure that construction activities do not result in releases of volatile organics which could adversely impact ambient air quality.

The site-specific Health and Safety Plan will adequately address these concerns. This plan to be developed for use in this IRA will detail the site monitoring program and define any operational modifications to be implemented in the event monitoring detects specific levels of such emissions. This plan is developed after the actual construction site has been chosen and is based upon site-specific information. It will be available for review later in the IRA process.

The National Emissions Standards for Hazardous Air Pollutants (NESHAPS) were evaluated to determine whether they were applicable or relevant and appropriate to apply in the context of construction of this IRA. These standards were not considered applicable because they apply to stationary sources of these pollutants, not to construction activity. They were not considered relevant and appropriate because they were developed for manufacturing processes, which are significantly dissimilar to the short-term construction activity contemplated by this IRA.

The provisions of 40 CFR 50.6 will be considered relevant and appropriate. This standard is not applicable because it addresses Air Quality Control Regions, which are areas significantly larger than and different from the area of concern in this IRA. Pursuant to this regulation, there will be no particulate matter transported by air from the site that is in excess of 50 micrograms per cubic meter (annual geometric mean) and 150 micrograms per cubic meter

(maximum 24-hour concentration) will not be exceeded more than once per year.

Air Stripper Operations

Since an air stripper is used in conjunction with the treatment system, the Army will treat the provisions of Colorado Air Pollution Control Regulation No.3, Section IV (D)(3)(a), as relevant and appropriate and will use best practical control technology. This regulation is not applicable because the IRA treatment system will not be a major stationary source, as defined in that regulation. Also considered relevant and appropriate to operations are the provisions of 5 CCR 1001-14, Regulation No. 2, concerning odor emissions.

The air stripper will be operated so that it will not cause exceedances of the federal ambient air standards listed in 40 CFR Part 50 and State ambient air standards contained in 5 CCR 1001-14.

Worker Protection

The provision of 29 CFR 1910.120 are applicable to workers at the site because these provisions specifically address hazardous substance response operations under CERCLA. It should be noted that these activities are presently governed by the interim rule found at 29 CFR 1910.120 but that by the time IRA activity commences at the site, the final rule found at 54 FR 9294 (March 6, 1989) will be operative. (The final rule became effective on March 6, 1990.)

General Construction Activities

The following performance, design, or other action-specific State ARARs have ben preliminarily identified by the Army as applicable to construction activities conducted pursuant to this IRA:

Colorado Air Pollution Control Commission Regulation No. 1, 5 CCR 1001-3, Part III(D)(2)(b), Construction Activities:

a. Applicability - Attainment and Nonattainment Areas

b. General Requirement

Any owner or operator engaged in clearing or leveling of land or owner or operator of land that has been cleared of greater than one (1) acre in nonattainment areas for which fugitive particulate emissions will be emitted shall be required to use all available and practical methods which are technologically

feasible and economically reasonable in order to minimize such emissions, in accordance with the requirements of Section III.D. of this regulation.

c. Applicable Emission Limitation Guideline

Both the 20% opacity and the no off-property transport emission limitation guidelines shall apply to construction activities; except that with respect to sources or activities associated with construction for which there are separate requirements set forth in this regulation, the emission limitation guidelines there specified as applicable to such sources and activities shall be evaluated for compliance with the requirements of Section III.D. of this regulation. (Cross Reference: Subsections e. and f. of Section III.D.2 of this regulation).

d. Control Measures and Operating procedures

Control measures or operational procedures to be employed may include but are not necessarily limited to planting vegetation cover, providing synthetic cover, watering, chemical stabilization, furrows, compacting, minimizing disturbed area in the winter, wind breaks, and other methods or techniques.

Colorado Ambient Air Quality Standards, 5 CCR 1001-14, Air Quality Regulation A, Diesel-Powered Vehicle Emission Standards for Visible Pollutants:

a. No person shall emit or cause to be emitted into the atmosphere from any diesel-powered vehicle any air contaminant, for a period greater than 10 consecutive seconds, which is of such a shade or density as to obscure an observer's vision to a degree in excess of 40% opacity, with the exception of Subpart B below.

b. No person shall emit or cause to be emitted into the atmosphere from any naturally aspirated diesel-powered vehicle of over 8,500 lbs gross vehicle weight rating operated above 7,000 feet (mean sea level), any air contaminant for a period greater than 10 consecutive seconds, which is of such a shade or density as to obscure an observer's vision to a degree in excess of 50% opacity.

c. Diesel-powered vehicles exceeding these requirements shall be exempt for a period of 10 minutes, if the emissions are a direct result of a cold engine start-up and provided the vehicle is in a stationary position.

d. This standard shall apply to motor vehicles intended, designed, and manufactured primarily for use in carrying passengers or cargo on roads, streets, and highways.

Colorado Noise Abatement Statute, C.R.S. Section 25-12-103:

a. Each activity to which this article is applicable shall be conducted in a manner so that any noise produced is not objectionable due to intermittence, beat frequency, or shrillness. Sound levels of noise radiating from a property line at a distance of twenty-five feet or more therefrom in excess of the db(A) established for the following time periods and zones shall constitute prima facie evidence that such noise is a public nuisance:

Zone	7:00 a.m. to next 7:00 p.m.	7:00 p.m. to next 7:00 a.m.
Residential	55 db(A)	50 db(A)
Commercial	60 db(A)	55 db(A)
Light Industrial	70 db(A)	65 db(A)
Industrial	80 db(A)	75 db(A)

b. In the hours between 7:00 a.m. and the next 7:00 p.m., the noise levels permitted in subsection (1) of this section may be increased by ten db(A) for a period of not to exceed fifteen minutes in any one-hour period.

c. Periodic, impulsive, or shrill noises shall be considered a public nuisance when such noises are at a sound level of five db(A) less than those listed in Subpart (a) of this section.

d. Construction projects shall be subject to the maximum permissible noise levels specified for industrial zones for the period within which construction is to be completed pursuant to any applicable construction permit issued by proper authority or, if no time limitation is imposed, for a reasonable period of time for completion of the project.

e. For the purpose of this article, measurements with sound level meters shall be made when the wind velocity at the time and place of such measurement is not more than five miles per hour.

f. In all sound level measurements, consideration shall be given to the effect of the ambient noise level created by the

encompassing noise of the environment from all sources at the time and place of such sound level measurements.

In substantive fulfillment of Colorado Air Pollution Control Commission Regulation No. 1, this IRA will employ the specified methods for minimizing emission from fuel burning equipment and construction activities. in substantive fulfillment of Colorado's Diesel-Powered Vehicle Emission Standards, no diesel motor vehicles associated with the construction shall be operated in a manner that will produce emissions in excess of those specified in these standards.

The noise levels pertinent for construction activity provided in C.R.S. Section 25-12-103 will be attained in accordance with this applicable Colorado statute.

Wetlands Implications

Through estimation of the general area where a system would be located, the Army does not believe that any wetlands could be adversely affected. However, until a final design is selected and a final siting decision made, it cannot be definitively determined that no impact on wetlands will occur. If the final site selection and/or design results in an impact on wetlands, the Army will review the regulatory provisions concerning wetlands impact and other appropriate guidance, and will proceed in a manner consistent with those provisions. Coordination will be maintained with the U.S. Fish and Wildlife Service concerning any potential impacts on wetlands.

Land Disposal Restrictions and Removal of Soil

There are no action-specific ARARs that pertain to the excavation of soil during the construction of this treatment system.

EPA is currently developing guidance concerning the Land Disposal Restrictions (LDR). While guidance is limited, the Army has not determined that any waste subject to LDR will be present in the influent treated by this IRA. More guidance is scheduled to be completed prior to the implementation of this IRA and the Army will review these as they are released. If it is determined that a waste subject to LDR is present, the Army will act in a manner consistent with EPA guidance then in effect for the management of such as the context of CERCLA cleanup actions.

Although removal of soil from the area where treatment system will be located is a TBC, not an ARAR, it will be performed in accordance with the procedures set forth in the Task No. 32 Technical Plan, Sampling Waste Handling (November 1987), and EPA's

July 12, 1985, memorandum regarding "EPA Region VIII Procedure for Handling of Materials from Drilling, Trench Excavation and Decontamination during CERCLA RI/FS Operations at the Rocky Mountain Arsenal." In general, any soils generated by excavation during the course of this IRA, either at surface or subsurface, will be returned to the location from which they originated (i.e., last out, first in). Any materials remaining after completion of backfilling that are suspected of being contaminated (based on field screening techniques) will be properly stored, sampled, analyzed, and ultimately disposed as CERCLA hazardous wastes, as appropriate.

Sludges which remain from the treatment system will be similarly managed. Such material will be screened and sampled to determine if it constitutes hazardous waste and also the specific material will be evaluated to determine whether any LDRs then in effect apply to its management. Any such material will be either managed on-site pending later disposal or sent for off-site disposal, as determined later in the IRA process when more specific information is developed. It is not possible until later in the IRA process to specifically identify requirements which will apply to management of such material, however these are generally discussed below.

For material determined to be hazardous waste, substantive RCRA provisions are applicable to their management. These substantive provisions include but are not limited to: 40 CFR Part 262 (Subpart C, Pre-Transport Requirements), 40 CFR part 263 (Transporter Standards), and 40 CFR Part 264 (Subpart I, Container Storage). The specific substantive standards applied will be determined by the factual circumstances of the accumulation, storage, or disposal techniques actually applied to any such material.

Tanks

The Army has not identified in the influent for this IRA a listed waste, as identified by Subpart D for 40 CFR Part 261. It is not believed that the influent for this treatment system will exhibit any of the characteristics of hazardous waste identified in Subpart C of 40 CFR Part 261 due to the low levels of contaminants anticipated to be contained in the influent. Therefore, Subpart J of 40 CFR Part 265 is not considered applicable to this IRA. However, Subpart J of 40 CFR Part 265 will be considered relevant and appropriate to apply in the context of this IRA to tanks which are used to store liquid prior to its treatment by the IRA treatment system.

8.4 COMPLIANCE WITH THE OTHER ENVIRONMENTAL LAWS

As is evident from the various portions of this document, this IRA was prepared in substantive compliance with CFR 1502.16 (the regulations implementing the National Environmental Policy Act of 1969).

9.0 SCHEDULE

Immediately following the finalized Interim Response Action Decision Document (IRADD), the Army will begin preparation of the design for this facility. The Draft Implementation Document (design) is scheduled for release on 11 January 1991. Mobilization is expected to begin soon thereafter, and the IRA should be finished by fall of 1991.

10.0 CONSISTENCY WITH THE FINAL RESPONSE ACTION

The purpose of this IRA is to create a wastewater treatment facility capable of remediating a variety of contaminants in wastewaters created during remedial actions. Although the Final Response Actions have not been selected at this time, this IRA has been developed to be consistent with and contribute to their efficient performance throughout the remainder of the remedial action process at RMA.

11.0 REFERENCES

Consent Decree. June 1988. United States of America, Plaintiff vs. Shell Oil Company, Inc., Defendant. In the United States District Court for the District of Colorado. Civil Action No. 83-2379.

Waterways Experiment Station, U.S. Corps of Engineers (Environmental Laboratory), June 1989. CERCLA Wastewater Treatment System and Processes Treatability Study.

Federal Facility Agreement. 17 February 1989 by United States Army, Environmental Protection Agency, Department of Interior, Agency for Toxic Substances and Disease Registry, Department of Justice and Shell Oil Company.

APPENDIX

COMMENTS AND RESPONSES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2405

JAN 3 0 1990.

Ref: 8HWM-FF

Mr. Donald L. Campbell
Office of the Program Manager
Rocky Mountain Arsenal
ATTN: AMXRM-PM
Commerce City, Colorado 80022-2180

Re: Rocky Mountain Arsenal (RMA)
Proposed Decision Document for
the CERCLA Wastewater Treatment
System Interim Response Action,
December 1989.

Dear Mr. Campbell:

We have reviewed the above referenced document and have the enclosed comments. We also favor a flexible approach for the design of this system and wish to comment further as more information is developed in the design and implementation phases. Please contact Linda Jacobson at (303) 294-7093, if you have questions on this matter.

Sincerely,

Connally Mears
EPA Coordinator for RMA Cleanup

cc: Col. Dan Voss, RMA-PMO
Enge Dressler, RMA-PMO
Jeff Edson, CDH
David Shelton, CDH
Vicky Peters, CAGO
Major Larry Rouse
Chris Hahn, Shell
George Roe, Shell
Robert Foster, DOJ

COMMENTS ON THE PROPOSED DECISION DOCUMENT FOR THE CERCLA WASTEWATER TREATMENT SYSTEM INTERIM RESPONSE ACTION DECEMBER 1989

1. Pages 8 and 12, the validity of the selection of the UV/peroxide unit as an organic removal process, rather than a polishing process, needs to be reevaluated, given the widely ranging organic concentrations to be encountered. The Final Assessment response to this question states that determination of how the UV/oxidation unit will fit into the treatment train will be addressed in the detailed design phase. However, the Proposed Decision Document states that UV/oxidation will be used to reduce loading to the GAC system (pages 8 and 12). Please state the justification for the implied sequence of treatments.

2. As requested in EPA Comment 4 on the Revised Draft Assessment, please provide us with a flow diagram for the existing CWTS, similar to the one provided for the proposed CWTS in Figure 1 of the Final Assessment, which would be useful in comparing alternatives. Further, we await receipt of the requested schematic and "details of the wastewater 'feed system'", promised to us in the response to Comment 4 on the Assessment.

3. Page 10, please revise the Chronology of Events to include the receipt of comments from the parties on the Alternatives Assessment.

4. Page 13, the design must be flexible to allow the treatment of contaminants other than fluoride by the activated alumina.

Please state whether the activated alumina unit is to be regenerated or disposed onsite or whether the exhausted media will be thus managed offsite. If the unit is to be regenerated onsite, how the spent regenerant will be handled and ARARs for that process should be discussed in this document. Please expand the text to address this.

The response to the above comment in the Final Assessment states this issue will be covered in the Proposed Decision Document. The Proposed Decision Document states the issue is responded to in the Final Assessment. The issue is not addressed in either document. Please address it in this response.

5. Page 16, the text does not view AWQCs as ARARs. In this instance, treatment will be followed by surface water discharge. Unless there are risk-based levels that are more protective, AWQCs are ARARs as there are biota receptors from the discharged surface water.

6. Page 21, the Air Quality Control Regions language in the document needs to be revised to reflect the language developed for other IRAs.

7. Page 21, 40 CFR 61 Standards are relevant and appropriate (not applicable) if contaminants emitted from the stripper are regulated and exceed threshold quantities. These standards need to be reevaluated for the quantity and type of compound being emitted rather than dismissing them on a process evaluation.

8. Page 22, per EPA policy, CERCLA Compliance with Other Laws Manual (OSWER Directive 9234.1-01), the Endangered Species Act, the Migratory Bird Treaty Act, and the Bald Eagle Protection Act are ARARs.

9. Page 28, no "listed wastes" were identified for this IRA. We do not agree with this assertion. As stated on page 5, the goal of this IRA is to "treat wastewaters resulting from the assessment and implementation of response actions at the RMA." Given the long history of production and the wide variety of contaminants detected on RMA, it is improbable that there are no listed wastes to be treated from well development waters or decontamination waters. We refer you to 40 CFR 261, Parts C and D, for description and listing of characteristic and listed wastes. We wish to discuss this matter further and assist in the identification of RMA listed wastes and potential impact of the LDR regulations (either existing or proposed).

10. Page 11, please state the justification for choosing parallel plate settling for the chemical addition/precipitation treated wastewater. Please state whether sufficient data are available to determine a specific type of settling technology at this point.

RESPONSES TO COMMENTS ON THE PROPOSED
DECISION DOCUMENT AND ON APPLICABLE OR RELEVANT AND
APPROPRIATE REQUIREMENTS FOR THE CERCLA WASTEWATER
TREATMENT SYSTEM IRA BY THE ENVIRONMENTAL PROTECTION AGENCY
DECEMBER 1989

Specific Comments

1. Pages 8 and 12, the validity of the selection of the UV/peroxide unit as an organic removal process, rather than a polishing process, needs to be reevaluated, given the widely ranging organic concentrations to be encountered. The Final Assessment response to this question states that determination of how the UV/oxidation unit will fit into the treatment train will be addressed in the detailed design phase. However, the Proposed Decision Document states that UV/oxidation will be used to reduce loading to the GAC system (pages 8 and 12). Please state the justification for the implied sequence of treatments.

RESPONSE: The Army will revise the Document, as stated in the Final Alternatives Assessment, to state that UV/oxidation could potentially reduce the organic loading on other organic removal processes (i.e., GAC system and air stripping process) or serve as a polishing process. Determination of how the UV/oxidation unit will be sequenced in the treatment process train will be part of the detailed design phase.

2. As requested in EPA Comment 4 on the Revised Draft Assessment, please provide us with a flow diagram for the existing CWTS, similar to the one provided for the proposed CWTS in Figure 1 of the Final Assessment, which would be useful in comparing alternatives. Further, we await receipt of the requested schematic and "details of the wastewater 'feed system'", promised to us in the response to Comment 4 on the Assessment.

RESPONSE: A schematic of the existing South Plants Treatment System and how it feeds into the 170,000 gallon storage tank has been provided to EPA under separate letter, dated February 23, 1990. This schematic also shows the flow of wastewater through the treatment system.

3. Page 10, please revise the Chronology of Events to include the receipt of comments from the parties on the Alternatives Assessment.

RESPONSE: The text has been changed to reflect this comment.

4. Page 13, the design must be flexible to allow the treatment of contaminants other than fluoride by the activated alumina.

Please state whether the activated alumina unit is to be regenerated or disposed onsite or whether the exhausted media will be thus managed offsite. If the unit is to be regenerated onsite, how the spent regenerant will be handled and ARARs for that process should be discussed in this document. Please expand the text to address this.

The response to the above comment in the Final Assessment states this issue will be covered in the Proposed Decision Document. The Proposed Decision Document states the issue is responded to in the Final Assessment. The issue is not addressed in either document. Please address it in this response.

RESPONSE: The Army agrees that the design of the activated alumina unit should be flexible enough to include the treatment of other contaminants other than fluoride if determined necessary. For instance, wastewaters which could potentially be generated from the M-1 Settling Ponds and Lime Settling Basins IRAs contain arsenic and would need to be treated by the activated alumina unit. Currently, arsenic is being treated by activated alumina in the 1727 Sump IRA. During the detailed design phase of the project arsenic and any other contaminants that can be treated by activated alumina will be addressed.

The preferred approach for handling spent activated alumina is offsite management as stated in the response to Comment 8 on the Revised Draft Assessment. The statement will be included in the Draft Final Decision Document.

5. Page 16, the text does not view AWQCs as ARARs. In this instance, treatment will be followed by surface water discharge. Unless there are risk-based levels that are more protective, AWQCs are ARARs as there are biota receptors from the discharged surface water.

RESPONSE: Federal Water Quality Criteria (FWQC) were reviewed and consistent with the proposed NCP, not reflected as ARARs if more current health information was available. This IRA will discharge into the sanitary sewer for transport to the RMA STP for further treatment. The discharge from the STP is limited by the effluent limitations contained in the NPDES permit.

6. Page 21, the Air Quality Control Regions language in the document needs to be revised to reflect the language developed for other IRAs.

RESPONSE: The Draft Final Decision Document has been revised in response to this comment.

7. Page 21, 40 CFR 61 Standards are relevant and appropriate (not applicable) if contaminants emitted from the stripper are regulated and exceed threshold quantities. These standards need to be reevaluated for the quantity and type of compound being emitted rather than dismissing them on a process evaluation.

RESPONSE: The standards contained in 40 CFR 61 were reviewed and determined not to be relevant and appropriate to the air stripper operations, to be utilized as part of the treatment by this IRA system. The Army will comply with the guidance contained in OSWER Directive 9355.U-28 concerning air stripper controls.

8. Page 22, per EPA policy, CERCLA Compliance with Other Laws Manual (OSWER Directive 9234.1-01), the Endangered Species Act, the Migratory Bird Treaty Act, and the Bald Eagle Protection Act are ARARs.

RESPONSE: The Endangered Species Act, the Migratory Bird Treaty Act, and the Bald Eagle Protection Act are identified as applicable to this IRA in the Draft Final Decision Document.

9. Page 28, no "listed wastes" were identified for this IRA. We do not agree with this assertion. As stated on page 5, the goal of this IRA is to "treat wastewaters resulting from the assessment and implementation of response actions at the RMA." Given the long history of production and the wide variety of contaminants detected on RMA, it is improbable that there are no listed wastes to be treated from well development waters or decontamination waters. We refer you to 40 CFR 261, Parts C and D, for description and listing of characteristic and listed wastes. We wish to discuss this matter further and assist in the identification of RMA listed wastes and potential impact of the LDR regulations (either existing or proposed).

RESPONSE: The Army will work closely with EPA to identify wastes which may be restricted from land disposal. As EPA is aware, guidance concerning this matter is still under development. If it is determined that such waste is present, the Army will act in a manner consistent with the EPA guidance then in effect for the management of such in the context of CERCLA cleanup actions.

10. Page 11, please state the justification for choosing parallel plate settling for the chemical addition/precipitation treated wastewater. Please state whether sufficient data are available to determine a specific type of settling technology at this point.

RESPONSE: Sufficient data is not available to determine a specific type of settling technology at this point. The text has been changed to reflect that the selection of a specific settling technology will occur in the design phase and be based upon an engineering evaluation and design testing as necessary.

STATE OF COLORADO

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Roy Romer
Governor

Thomas M. Vernon, M.D
Executive Director

January 30, 1990

Mr. Donald Campbell
Office of the Project Manager
Rocky Mountain Arsenal
AMXRM-PM, Building 111
Commerce City, CO 80022-2180

Re: State Comments on the Proposed Decision Document for the CERCLA Wastewater Treatment System IRA

Dear Mr. Campbell:

Enclosed are the State's comments on the Proposed Decision Document and Applicable or Relevant and Appropriate Regulations (ARARs) for the CERCLA Wastewater Treatment System Interim Response Action (IRA). Based upon the State's review of this Proposed Decision Document and Army responses to State comments on this IRA's Alternative Assessment, the State is unwilling to provide to the Army its position on the Army's decision at this time. State approval or denial of the Army's decision to construct a new wastewater treatment system on RMA can only be decided once the State receives adequate responses to numerous technical questions and/or concerns it has previously provided the Army, and those included in this comment package. In addition, until the State is provided with sufficient information to adequately evaluate the chosen alternatives' feasibility in removing contaminants, it is impossible for the State to concur with the Army's proposed decision on the chosen processes.

In the State's comments on the Alternative Assessment, important technical issues such as 1) how the proposed unit process operations will work; 2) the waste water treatment plants' potential impact on the RMA sanitary sewer plant; 3) the ability of the unit process operations to remove contaminants known to be in the waste water scheduled for treatment under this IRA; 4) adequate monitoring of the effluent waste waters to ensure compliance with ARARs; and 5) Army assurances that the methods of treatment proposed will meet ARARs were not sufficiently responded to by the Army. Instead, the State was told that issues such as these would be addressed in the design and implementation report. These important concerns cannot be inappropriately postponed to a later date in the process. The State must be supplied with adequate data, instead of the "trust us, we'll work it out later" attitude of the Army.

In addition to the Alternative Assessment comments which the State believes must be addressed before the Final Decision Document can be issued (Comments #3, 4, 5a, 5b, 5c, and 5d), the State has the following concerns:

1. The Army proposes using the air stripper at the South Plants in this process. The pilot testing of the air stripper presented in the CERCLA Wastewater Treatment System Final Assessment, consisting of only six before and after samples of only a few volatile organics, is inadequate to adequately evaluate the air stripper. The State requests that additional pilot testing be done prior to making a decision whether or not to use this stripper. The State cannot evaluate whether this unit process will be capable of meeting ARARs for volatile organics without more pilot test data.

2. According to the Decision Document (p. 12) no contaminated residue will be produced by the air stripping process. This appears to indicate that no carbon adsorber will be used on the vent gas of the air stripper, since carbon adsorbers would require regular removal and disposal or regeneration. However, according to p. 24 of the Decision Document, the Army is bound under Colorado Air Pollution Control Regulation No. 3, Section IV (D)(3)(a) to use the best practical control technology. The State believes that a carbon adsorber or a fume incinerator will be required to comply with this regulation.

3. Page 13 of the Decision Document states:

> "Provisions will be made to route effluent from the treatment system into storage tanks should additional testing or treatment be needed. However, upon completion of treatment, effluent discharge to the sanitary sewer is appropriate."

The State strongly disagrees with this statement, and requests that testing of <u>every</u> batch of wastewater through the system be performed. The data presented indicates that use of the UV/Chemical Oxidation is a trial and error process. There is no reason to believe that each batch of wastewater will contain similar chemical characteristics and concentrations; therefore, conditions which are optimal for the treatment for some wastewaters will be ineffectual on other waste streams. Similarly, the State has insufficient data to conclude that air stripping, metals and other inorganics removal processes will work for all wastewaters. Furthermore, the testing must be undertaken in a manner to ensure that ARARs have been met through destruction and removal of contaminants and not just through dilution which may result from mixing before, during and after the process.

4. The State has reviewed the Army's response to our comment number 6 on the CERCLA Wastewater Revised Draft Assessment which discusses the "RMA-wide management program." The State was told that this program would a address the disposal of solid residues from this wastewater treatment plant. Neither of the two documents referred to, Task No. 32, Technical Plan, Sampling Waste Handling nor the EPA Memorandum of July 12, 1985 (included as an appendix to "Sampling Waste Handling") is applicable to the management and disposal of the CERCLA was wastewater treatment system sludges. As the title of the first document suggests, this technical plan was designed to manage wastes from the RI/FS sampling program.

The other document cited by the Army is also intended only for the management of contaminated materials generated or disturbed during RI/FS sampling activities. Its title is "EPA Region VIII procedure for handling of materials from drilling, trench excavation, and decontamination during CERCLA RI/FS operations at the Rocky Mountain Arsenal." The first paragraph clarifies that "decontamination" in the title refers to personnel or equipment. Moreover, if the Army intended to imply that the CERCLA Wastewater treatment system sludges will be managed in the same manner as wastes discussed in Task 32, we believe that the measurements for the disposal of the sludges are too vague. As described in "Sampling Wastes Handling: on page 27, Section 3.3.5.5:

> "Miscellaneous drummed wastes (contaminated trash and clothing, unknowns, etc.) will be kept in long-term storage until the RI/FS has been completed or until a disposal option becomes available."

The Decision Document must set forth a specific program for management and disposal of these sludges, in accordance with State and federal regulations. An additional State concern is the inconsistency between responses to State comments on the Alternative Assessment, and statements on pages 11 and 12 of the Proposed Decision Document. Bullets 2, 3, and 4 of the Decision Document describe unit process operations in such a manner as to make the reader believe that each unit process will be used to treat the influent waste waters. Statements such as "ultraviolet light/chemical oxidation will be used to destroy or reduce the concentrations of a variety of organic contaminants, reducing the load on the a activated carbon adsorption treatment" and "Air Stripping will remove any residual volatile organics surviving carbon adsorption treatment" implies that each of these processes will be used in unison with each other.

In response to State concerns regarding the monitoring of effluent characteristics (State comment No. 5c on the Alternative Assessment), however, the Army responds, "As the State is aware, each batch of influent wastewater will be characterized prior to treatment so that appropriate use and sequencing of unit processes can be defined." The Army's response to State comment No. 5d on the Alternative Assessments states, "The design and implementation process that will occur later in the IRA process addresses the specific methods of treatment and monitoring to be applied..."

These two statements directly contradict the Decision Document, where it is evident that all unit process operations have already been sequenced.

Has the Army concluded how the proposed treatment system will operate to achieve ARARs? The State must be assured that the Army will adequately attempt to reach ARARs with each batch of influent wastewater, using each unit process if necessary. In addition, the Army must, as stated above, implement an effluent monitoring program for <u>each</u> batch of treated wastewater, prior to discharge into the sanitary sewer.

Finally, as the Army is aware, the State continues to have several significant concerns regarding the discharge of this treated wastewater to the sanitary sewer. The Army is also undoubtedly aware that the State submitted to the EPA numerous comments on the proposed NPDES permit for the Arsenal.

In its response to the State's comment No. 5d on the Alternative Assessment, the Army replied that "The NPDES permit, now under review and to be issued by EPA for the plant, will establish appropriate discharge limitations that the Army is required to and will comply with." The State questions how the Army can predict and assure compliance with the NPDES permit without knowledge of the final discharge limitations. As stated in the State's comments to the proposed NPDES permit, it is inappropriate to assume that the CERCLA waste water will be treated to the extent necessary to ensure that NPDES limitations will be met. Such determinations cannot be made prior to field testing of the system. More importantly, the proposed NPDES permit does not include limitations for the vast majority of CERCLA wastewater contaminants.

Therefore, it is the State's position that a great deal of additional pilot testing be performed, using worst-case chemical concentrations, to better define the capabilities of the unit process operations. Once the pilot test data is available, and a Final NPDES permit is issued, the Army should then reevaluate whether compliance with the NPDES permit is viable.

The State requests a technical subcommittee meeting in the near future to discuss its concerns. We believe that this meeting should be held prior to the issuance of the Final Decision Document for this IRA.

Sincerely,

Jeff Edson
RMA Project Manager
Hazardous Materials and
Waste Management Division

JE/cf

cc: Michael Hope
Chris Hahn
Edward McGrath
John Moscato
Connally Mears
Bruce Ray
Tony Truschel
Major Lawrence E. Rouse

RESPONSES TO STATE COMMENTS FROM THE
STATE OF COLORADO ON THE PROPOSED
DECISION DOCUMENT, DECEMBER 1989

General Comments

1. Based upon the State's review of this Proposed Decision Document and Army responses to State comments on this IRA's Alternative Assessment, the State is unwilling to provide to the Army its position on the Army's decision at this time. State approval or denial of the Army's decision to construct a new wastewater treatment system on RMA can only be decided once the State receives adequate responses to numerous technical questions and/or concerns it has previously provided the Army, and those included in this comment package. In addition, until the State is provided with sufficient information to adequately evaluate the chosen alternatives' feasibility in removing contaminants, it is impossible for the State to concur with the Army's proposed decision on the chosen processes.

   In the State's comments on the Alternative Assessment, important technical issues such as 1) how the proposed unit process operations will work; 2) the wastewater treatment plants' potential impact on the RMA sanitary sewer plant; 3) the ability of the unit process operations to remove contaminants known to be in the wastewater scheduled for treatment under this IRA; 4) adequate monitoring of the effluent wastewaters to ensure compliance with ARARs; and 5) Army assurances that the methods of treatment proposed will meet ARARs were not sufficiently responded to by the Army. Instead, the State was told that issues such as these would be addressed in the design and implementation report. These important concerns cannot be inappropriately postponed to a later date in the process.

RESPONSE: It is regrettable that the State has chosen not to endorse the Army's proposed decision to construct a new onsite wastewater treatment system to replace the present system. As more Interim Response Actions (IRAs) move into the implementation phase, the need for greater wastewater treatment capacity and capability at a centrally located facility is self-evident. In the simplest of terms, the Army has recognized this need and committed through the Proposed Decision Document to design, evaluate, construct and operate a new treatment facility.

In responding to earlier technical comments from the State, the Army did not dismiss them as unworthy of a response. Rather, we attempted to explain that while they were valid questions, they would be answered in later IRA phases, and that they went far beyond the basic decision to build a new treatment facility. During the preliminary and final engineering design efforts, the State will be provided sufficient information to adequately evaluate the chosen alternatives and their efficiencies in removing

contaminants. By accepting the above decision, the State is not forever waiving its need to judge the design and operation of the facility, but rather is merely concurring that this IRA should proceed into the next phase, i.e., design/evaluation.

The CERCLA treatment facility is envisioned by the Army to be a long term project that is likely to be in operation throughout the Arsenal cleanup. As such, the Organizations and State will have the opportunity to review and comment not only during this IRA, but also in the final Record of Decision.

In responding to the State's comments on the Alternative Assessment, the Army attempted to clarify the meaning of these comments. Those that dealt with the assessment process and associated work performed were answered. Those that dealt with the potential design and operation of the facility, i.e., work not yet completed, were deferred until the appropriate IRA phase was reached. At no time was the Army attempting to circumvent State concerns or imply that the State had to rely on "trust".

First, the Proposed Decision Document specified that five unit processes should be used in the CERCLA facility. The State had concerns about exactly how these processes would be operated. The Army surmises that these concerns were about sizing, flowrates, efficiencies and inter-relationships to other unit processes. To provide this kind of detail, the Army would have to design, construct and startup test the facility. Clearly the document that would contain such information would not be a Decision Document, but rather an Implementation Document.

Second, the Army is keenly aware of the facilities potential impact on the RMA sanitary sewer and its operations within the NPDES permit. In response to the State's concerns, the Army believes that one focus of design should be an investigation into minimizing the discharge of treated water into the sanitary sewer. Possible concepts that the Army would like to investigate are: 1) returning treated water that originated as groundwater to the alluvial aquifer via one of the existing groundwater treatment systems; 2) recycling treated decontamination pad water and using that treated water to decontaminate vehicles again; 3) passive evaporation of treated water. Obviously, until the results of such design investigations are available, the Army's proposed decision to discharge to the sanitary sewer system remains unchanged. If the results of the design investigation indicate a need to change the proposed discharge decision, the Army would reopen public comment and the decision process for this single aspect of the CERCLA facility.

Third, the ability of the chosen unit processes to remove known contaminants will logically be addressed in engineering design and testing. The State will have several additional opportunities for review and comment during design and construction prior to any wastewater treatment occurring. In terms of the technical basis for selection of the five unit processes, only one has not been

previously used by existing Arsenal or IRA systems. That unit process, i.e., metals precipitation, will receive the greatest attention in the design phase.

Finally, State concerns about Army assurances that compliance with ARARs will be met are without basis. Simply put, the Army recognizes that ARARs have to be met to operate an IRA. If the CERCLA treatment facility cannot achieve ARARs, it cannot be operated. The State is not at risk in this approach. Rather, the Army assumes risk and financial liability if the CERCLA facility is improperly designed. It is in the paramount interest of the Army to be "right the first time" on this IRA. The State is not being asked to blindly "trust" the Army. The State is only being asked to work within the IRA process, and to review design and operational aspects of the IRA as they are developed.

Specific Comments

1. The Army proposes using the air stripper at the South Plants in this process. The pilot testing of the air stripper presented in the CERCLA Wastewater Treatment System Final Assessment, consisting of only six before and after samples of only a few volatile organics, is inadequate to adequately evaluate the air stripper. The State requests that additional pilot testing be done prior to making a decision whether or not to use this stripper. The State cannot evaluate whether this unit process will be capable of meeting ARARs for volatile organics without more pilot test data.

RESPONSE: The Army's decision made in the Proposed Decision Document was that air stripping technology would be used in the CERCLA treatment facility. The Army did suggest that the present air stripper at the South Plants may be suitable for use in the CERCLA treatment facility. This statement by no means guarantees use of the existing South Plants air stripper in the CERCLA treatment facility. Additional engineering evaluation of the existing air stripper will be performed during design. The engineering evaluation envisioned would potentially include additional testing, analysis of equipment capacity, assessing the need for vent gas control and a cost comparison for relocation/ modification of the existing air stripper versus a new unit. A decision whether to utilize the existing air stripper or design and purchase a new unit will be addressed in the design phase as explained above and would only occur after additional engineering evaluation.

2. According to the Decision Document (p. 12) no contaminated residue will be produced by the air stripping process. This appears to indicate that no carbon adsorbers would require regular removal and disposal or regeneration. However, according to p. 24 of the Decision Document, the Army is bound under Colorado Air Pollution Control Regulation No. 3, Section IV (D)(3)(a) to use the best practical control technology.

The State believes that a carbon adsorber or a fume incinerator will be required to comply with this regulation.

RESPONSE: The Army's discussion regarding air stripping technology as part of the treatment process was based on the assumption that air stripping would most likely be used only as a final polishing step following carbon adsorption. If air stripping technology is used as a polishing step in the treatment process, stack gas monitoring is likely to show very low concentrations or no detectable levels of known contaminants. For that reason, carbon adsorption or fume incineration for off gas control was not considered necessary and thus no contaminated residual was expected. Certainly the Army agrees with use of the best practical control technology. As discussed in the response to comment number 1, additional engineering evaluation will be addressed in the design phase of the project, and if off gassing controls become necessary, best practical control technology will be used.

3. Page 13 of the Decision Document states:

> "Provisions will be made to route effluent from the treatment system into storage tanks should additional testing or treatment be needed. However, upon completion of treatment, effluent discharge to the sanitary sewer is appropriate.

The State strongly disagrees with this statement, and requests that testing of <u>every</u> batch of wastewater through the system be performed. The data presented indicates that use of the UV/Chemical Oxidation is a trial and error process. There is no reason to believe that each batch of wastewater will contain similar chemical characteristics and concentrations; therefore, conditions which are optimal for the treatment of some wastewaters will be ineffectual on other waste streams. Similarly, the State has insufficient data to conclude that air stripping, metals and other inorganics removal processes will work for all wastewaters. Furthermore, the testing must be undertaken in a manner to ensure that ARARs have been met through destruction and removal of contaminants and not just through dilution which may result from mixing before, during and after the process.

RESPONSE: The Statement referenced by the State was not implying that effluent discharge to the sanitary sewer would occur without appropriate analytical testing. The document was revised to clarify this matter.

4. The State has reviewed the Army's response to our comment number 6 on the CERCLA Wastewater Revised Draft Assessment which discusses the "RMA-wide management program." The State was told that this program would address the disposal of solid residues from this wastewater treatment plant. Neither of the two documents referred to, Task No. 32, Technical Plan, Sampling Waste Handling nor the EPA Memorandum of July 12,

1985 (included as an appendix to "Sampling Waste Handling") is applicable to the management and disposal of the CERCLA was wastewater treatment system sludges. As the title of the first document suggests, this technical plan was designed to manage wastes from the RI/FS sampling program.

The other document cited by the Army is also intended only for the management of contaminated materials generated or disturbed during RI/FS sampling activities. Its title is "EPA Region VIII procedure for handling of materials from drilling, trench excavation, and decontamination during CERCLA RI/FS operations at the Rocky Mountain Arsenal." The first paragraph clarifies that "decontamination" in the title refers to personnel or equipment. Moreover, if the Army intended to imply that the CERCLA wastewater treatment system sludges will be managed in the same manner as wastes discussed in Task 32, we believe that the measurements for the disposal of the sludges are too vague. As described in "Sampling Wastes Handling: on page 27, Section 3.3.5.5:

> "Miscellaneous drummed wastes (contaminated trash and clothing, unknowns, etc.) will be kept in long-term storage until the RI/FS has been completed or until a disposal option becomes available."

The Decision Document must set forth a specific program for management and disposal of these sludges, in accordance with State and federal regulations. An additional State concern is the inconsistency between responses to State comments on the Alternative Assessment, and statements on pages 11 and 12 of the Proposed Decision Document. Bullets 2, 3, and 4 of the Decision Document describe unit process operations in such a manner as to make the reader believe that each unit process will be used to treat the influent wastewaters. Statements such as "ultraviolet light/chemical oxidation will be used to destroy or reduce the concentrations of a variety of organic contaminants, reducing the load on the activated carbon adsorption treatment" and "Air Stripping will remove any residual volatile organics surviving carbon adsorption treatment" implies that each of these processes will be used in unison with each other.

In response to State concerns regarding the monitoring of effluent characteristics (State comment No. 5c on the Alternative Assessment), however, the Army responds, "As the State is aware, each batch of influent wastewater will be characterized prior to treatment so that appropriate use and sequencing of unit processes can be defined." The Army's response to State comment No. 5d on the Alternative Assessment states, "The design and implementation process that will occur later in the IRA process addresses the specific methods of treatment and monitoring to be applied..."

These two statements directly contradict the Decision Document, where it is evident that all unit process operations have already been sequenced.

Has the Army concluded how the proposed treatment system will operate to achieve ARARs? The State must be assured that the Army will adequately attempt to reach ARARs with each batch of influent wastewater, using each unit process if necessary. In addition, the Army must, as stated above, implement an effluent monitoring program for <u>each</u> batch of treated wastewater, prior to discharge into the sanitary sewer.

Finally, as the Army is aware, the State continues to have several significant concerns regarding the discharge of the treated wastewater to the sanitary sewer. The Army is undoubtedly aware that the State submitted to the EPA numerous comments on the proposed NPDES permit for the Arsenal.

In its response to the State's comment No. 5d on the Alternative Assessment, the Army replied that "The NPDES permit, now under review and to be issued by EPA for the plant, will establish appropriate discharge limitations that the Army is required to and will comply with." The State questions how the Army can predict and assure compliance with the NPDES permit without knowledge of the final discharge limitations. As stated in the State's comments to the proposed NPDES permit, it is inappropriate to assume that the CERCLA wastewater will be treated to the extent necessary to ensure that NPDES limitations will be met. Such determinations cannot be made prior to field testing of the system. More importantly, the proposed NPDES permit does not include limitations for the vast majority of CERCLA wastewater contaminants.

Therefore, it is the State's position that a great deal of additional pilot testing be performed, using worst-case chemical concentrations, to better define the capabilities of the unit process operations. Once the pilot test data is available, and a Final NPDES permit is issued, the Army should then reevaluate whether compliance with the NPDES permit is viable.

The State requests a technical subcommittee meeting in the near future to discuss its concerns. We believe that this meeting should be held prior to the issuance of the Final Decision Document for this IRA.

RESPONSE: The Army intends to utilize offsite disposal for management of sludges and residuals generated by operation of the CERCLA treatment facility. The Draft Final Decision Document will be revised to clearly set forth the above decision on the ultimate disposal of CERCLA treatment facility residuals and sludges. A detailed program for management of these solid wastes from generation through disposal will appropriately be developed during

the design phase and provided as part of the Draft Implementation Document. As always the State will have the opportunity to comment on the Draft Implementation Document.

The Army has not intentionally sequenced unit process operations in the Proposed Decision Document. As the State has suggested, the Army will, in an attempt to achieve ARARs, use each unit process as necessary for the treatment of each batch of influent wastewater. Text changes have been incorporated into the Draft Final Decision Document that should avoid any impression that sequencing of unit process operations has already been decided.

The Army is aware of the State's concerns regarding the discharge of treated wastewater to the sanitary sewer. Please refer to the Army's response to the State's general comment.

RESPONSES TO STATE COMMENTS FROM THE
STATE OF COLORADO ON APPLICABLE
OR RELEVANT AND APPROPRIATE REQUIREMENTS FOR
THE CERCLA WASTEWATER TREATMENT SYSTEM
DECEMBER 1989

General Comments

1. It is the State's position that these comments are submitted without waiving the State's legal position on the independent enforceability of RCRA/CHWMA to this IRA. Liquid received at the CERCLA Wastewater Treatment System will contain listed hazardous wastes regulated under the Colorado Hazardous Waste Management Act (CHWMA) and applicable regulations (6 CCR 1007-3). Therefore, any treatment or storage or disposal of the liquids requires a CHWMA permit. Any on-site disposal site would be required to meet the requirements for the siting of a hazardous waste disposal site found in the CHWMA regulations. Any off-site disposal would have to be accomplished at a permitted facility; transportation would be subject to, and have to meet the manifest requirements and the transporter requirements contained in the CHWMA regulations. See specific comments below.

RESPONSE: As the State is aware, the Army is proceeding consistent with CERCLA in the conduct of this IRA. ARARs are identified consistent with the provisions of CERCLA Section 121, 42 U.S.C. § 9621.

Specific Comments

1. Page 16, paragraph 2: The Army should identify ARARs for each contaminant that will be present in the wastewater to be treated as part of this Interim Response Action. Toward this end, this paragraph should provide specific sources for its "list of specific contaminants" that is the basis of this ARARs analysis, and substantiation for its assertion that this list represents those contaminants "likely to be found in the system influent." At a minimum, the Army's ARARs analysis should include (a) 1,3-Difluorobenzene, as indicated on page 83 of the June 1989 "Draft Final Report, CERCLA Wastewater Treatment System Needs Assessment and Processes Treatability Study" and (b), manganese, as indicated on page 89 of the same report, and (c) all degradation products from any of the previously mentioned contaminants that may reasonably be expected to be found in the wastewater to be treated.

RESPONSE: The list of specific contaminants has been compiled based upon treatability test data and represents those contaminants likely to be contained in the system influent. The Draft Final Decision Document addresses ARAR and TBC levels to be attained for listed contaminants. When no ARAR or TBC level can be identified for a compound, such as 1,3-Diflourobenzene, no such level is indicated. The Army can only rely on published material to

determine ARAR and TBC levels and can not create these without basis.

2. Page 16, paragraph 2: The paragraph seems to imply that the RMA sewage treatment plant offers a second, more thorough cleanup of the contaminants found in the CERCLA Wastewater. The document states, "This proposed IRA treatment system will discharge treated effluent to the sanitary sewer for eventual release after further treatment within the RMA sewage treatment plant. . . " The document states that discharges from the STP are "strictly regulated" by the RMA NPDES Permit, currently under revision. However, as documented by the State comments regarding the proposed NPDES Permit revision, the permit does not include limitations for many of the contaminants found in CERCLA wastewater. In addition, neither the proposed permit nor the Statement of Basis for the permit, prescribe further treatment of most of the contaminants likely to be discharged from the Wastewater [t]reatment System. The approach taken by the Army is contrary to the applicable regulations under the NPDES program which requires that effluent limitations be established for upstream discharges. Only by regulating all point-source discharges can EPA ensure that pollutants are being treated, not merely diluted, to acceptable concentrations.

   As explained in State comments on the proposed permit, it is the State's position that the Wastewater Treatment System is not a remedial action selected in compliance with section 121 of CERCLA, and therefore is not exempt from permitting requirements.

RESPONSE: As the State is aware, the EPA is currently revising the NPDES permit for the RMA sewage treatment plant. The effluent limitations and monitoring requirements will be finally established by EPA in the near future. The NPDES permit is not intended to duplicate the treatment standards contained within this IRA Decision Document. The extensive analysis and detailed treatment standards developed pursuant to CERCLA for this IRA provide limitations for the specific effluent from the IRA treatment system. It is also clear that many of the contaminants in the effluent will be treated by the operations conducted by the sewage treatment plant. The Army is proceeding pursuant to CERCLA with this IRA and pursuant to CERCLA Section 121(e), 42 U.S.C. § 9621(e) no federal, state or local permit is required.

3. Page 16, paragraph 5: The text states, "Consistent with the most recent EPA guidance, the Proposed National Contingency Plan ("NCP"), 53 Fed. Reg. 51394, 51441, Maximum Contaminant Level Goals contained in the NPDW are not considered either applicable or relevant and appropriate to apply in the context of this treatment system." However, the proposed NCP, which the Army treats as presently applicable, states, "EPA recognizes that there may be special circumstances where protection of human health requires more stringent standards

than MCLs, as with multiple contaminants or pathways of exposure. In such cases, EPA will make a site-specific determination whether risk posed by such multiple contaminants or pathways is in excess of 10-4 and, therefore, of the need for more stringent standards, considering MCLGs, EPA's policy on use of appropriate risk ranges for carcinogens, levels of quantification, and other pertinent guidelines." The Army should therefore consider MCLGs.

RESPONSE: Maximum contaminant level goals (MCLG) were reviewed after issuance of the final NCP by EPA. Consistent with the guidance contained in the NCP, no non-zero MCLGs were identified as being more stringent than the standards identified in the Draft Final Decision Document.

4. Page 17, paragraph 4: The Army ignores Federal Water Quality Criteria (FWQC) by stating that the TCBs are more "recent". In its response to the State's Comment 6 on the Draft ARARs for the CERCLA Wastewater Treatment System, the Army cited the proposed NCP as authority for disregarding FWQC.

The proposed NCP states, "EPA recommended Rfd's and cancer potency factors. . . should be used when an FWQC does not reflect current information." 53 Fed. Reg. 51394, 51442. The State is concerned that the Army may have ignored FWQC where no Rfd's or cancer potency factors existed. The Army should review the FWQC to detemine[sic] if no more current standard exists. If the FWQC is the only standard for the specific contaminant, FWQC must, at a minimum, be met.

CERCLA itself provides that a remedial action is to "require a level or standard of control which at least attains. . . water quality criteria established under section 304 or 303 of the Clean Water Act, where such goals or criteria are relevant and appropriate under the circumstances or the release or threatened release." (Section 121(d)(2)).

Rather than requiring adherence to water quality criteria, CERCLA provides that the criteria "at least" be attained. Overall, CERCLA remedies must "attain a degree of cleanup. . . and of control of further release at a minimum which assures protection of human health and the environment." (See section 121(d)(1) of CERCLA.) Many of the AWQC for aquatic life are in fact "lowest observed effect levels," meaning that they are not stringent enough to be fully protective. Therefore, at least in these instances, the cleanup goal should be more stringent than the AWQC.

RESPONSE: The Army has proceeded consistent with EPA guidance concerning the use of FWQC in CERCLA cleanup actions. The Army believes that, consistent with the NCP, the most recent data available has been identified.

5. Page 17, paragraph 5: The text states that Maximum Contaminant Levels (MCLS) offer "adequate protection of public health and the environment." The State disagrees that MCLs are protective enough of public health and the environment. Many MCLs, arsenic, for example, represent excess cancer risks significantly greater that 10E-6. Congress acknowledged this fact and for this reason provided that CERCLA cleanups should meet MCLGs which are statutorily required to be truly protective.

RESPONSE: The Army has proceeded consistent with the NCP concerning this issue. See response to Specific Comment 3.

6. Page 18, paragraph 1: The text states that the effluent from the CERCLA Wastewater Treatment System" will be further treated at the RMA STP." This statement is unsubstantiated and should be deleted. See the State's specific comment 2.

RESPONSE: See response to specific comment 2.

7. Page 18, paragraph 2: The Army proposes to "apply any Remedial action Objectives later developed in the Final Off-post EA/FS report to the extent practicable to these compounds" The State reserves the right to comment on these objectives once they are identified.

RESPONSE: The State will have the opportunity to comment during the preparation of the Final Off-post EA/FS.

8. Page 18, paragraph 3: The State appreciates the Army's acknowledgment that the Colorado Basic Standards and Methodologies (CBSM) and Colorado Basic Standards for Groundwater (CBSG) are relevant and appropriate for this IRA. Unfortunately, in many instances, the Army has failed to identify the correct numerical standards pursuant to those regulations. Instead it has identified the Practical Quantification Limits (PQLs). PQLs are detection limits which are based upon technical and economic viability. Since they are not strictly health-based, they do not represent the appropriate numbers to be applied as ARARs. The Army must recognize the standards listed in these regulations, not the PQLs. (Please note that the report erroneously cites Section 3.11.4.C.4. This citation should be corrected to read: 3.11.5.C.4.) To the extent that USATHAMA Certified Reporting Limits (CRLs) exceed these standards, efforts must be made to lower the CRL: in the mean time, effluent concentrations of these chemicals must be below CRLs.

The following chemicals had PQLs listed instead of the appropriate health-based standard:

Chemical	Standard	PQL	Source
Aldrin	.002	.1	CBSG
Chlordane	.03		CBSG
	.004*	10.0	CBSG
1,2-dichloropropane	.56	6.0	CBSG
dieldrin	.002	.1	CBSG

*human health groundwater standard

RESPONSE: The Army believes it has applied the PQLs as discharge standards, consistent with the Colorado Regulations. The referenced citation has been corrected.

9. Page 18, paragraph 3: The Army's Report must provide rationale for its selection of chemical specific ARARs. The most conservative ARAR from any of the acknowledged regulatory sources or "to be considereds" must be designated. Currently, the Army appears to have chosen from the sources arbitrarily. In addition, since First Creek, as noted by the Army at page 17, is classified for recreational and warm water aquatic as well as agricultural uses, all of those standards are applicable, and the most conservative must be incorporated into the Army's document. Chemicals for which the Army failed to designate lower aquatic (life) standards include the following:

Chemical	Army ARAR/TBC	Aquatic
chlordane	10/2	.0043
DDT	.1	.001
dieldrin	.1/.002	.0019
endrin	.1	.0023
malathion	none	.1
parathion	210	.013
chromium	50	chronic: 11(for hexavalent chromium which is toxic to fish)

copper	200	chronic e=(0.8545 [ln (hardness)] - 1.465
mercury	2	chronic 0.1 (aquatic) or FRV (fish) (6) = .01
zinc	2000	chronic (hardness - [200 mg/l]) = e5 (aquatic)

As indicated above, the ARARs designated by the Army for metals are not protective of aquatic life. This is of particular concern to the State since the proposed NPDES permit contains no effluent limitations for metals.

RESPONSE: For chlordane, DDT, dieldrin, and endrin; See the response to Comment 8. Malathion was not listed in the Final Draft Decision Document because it was not likely to be contained in the system influent. The Draft Final Decision Document was revised in response to this comment.

10. Page 18, paragraph 3: The Army fails to list any standards for Methylene Chloride; however, the Cancer Assessment Group has established a health-based number of 4.8 ug/l which should be considered.

RESPONSE: The Draft Final Decision Document was revised in response to this comment.

11. Page 18, paragraph 3: The Army failed to address State narrative standards which were identified as ARARs. These narrative standards include:

CBSM Section 3.1.11 (c) (color, odor, other nuisance);
CBSM Section 3.1.11 (d) (free from toxics); and
CBSM Section 3.1.8 (antidegradation).

These standards should be applied to any chemicals for which the State has not promulgated numerical standards. In particular, application of Section 3.1.11 (c) will probably result in a significantly lower standard for DCPD which is known to be a highly odoriferous compound.

RESPONSE: The Army believes that the application of the many numerical ARAR standards identified in the Draft Final Decision Document combined with the design efforts concerning TBCs, operates to satisfy the State's narrative standards. The Army believes that no more extensive or efficient water treatment system can be identified within Colorado.

12. Page 18, paragraph 3: The Army has designated 100 ug/l as its ARAR for chloroform. As the State has pointed out innumerable times, this number is not relevant and appropriate because it is based upon the technical feasibility of removing trihalomethanes from domestic water treatment systems. Such considerations are irrelevant to this IRA. Since this limit is not protective of human health, it cannot be designated as an ARAR. The State has previously proposed .19 ug/l as an appropriate health-based number.

RESPONSE: A TBC for chloroform has been included based on the EPA health risk information. Both the identified ARAR and TBC are below any State standards identified in either the CBSM or CBSG.

13. Page 20, paragraph 1: The text states that the TBC level for DIMP is 600 ug/l, based on an EPA Health Advisory. As the Army is aware, the State is currently in the process of promulgating a state-wide DIMP standard. The number is expected to be significantly lower than the EPA Health Advisory number. The Army should anticipate the promulgation of a State standard in the design and implementation of the treatment system.

RESPONSE: The Army is not aware of the State formally proposing any statewide DIMP standard. If any such standard is promulgated, it will be evaluated in the CERCLA process.

14. Page 21, paragraph 1: The document states that standards of 40 C.F.R. Part 50, the National Primary and Secondary Ambient Air Quality Standards, are considered neither applicable no relevant and appropriate to the IRA. These standards are clearly ARARs because the area affected by operation of the IRA is within an Air Quality Control Region. The document should be revised to reflect this.

The National Primary and Secondary Ambient Air Quality Standards contained in 40 CFR parts 50.4, 50.8, 50.9, and 50.11 for sulfur oxides, carbon monoxide, ozone, and nitrogen oxides, respectively, are applicable, regardless of whether an air stripper is involved.

The federal and state ambient air standards for particulate matter are also applicable. Section 50.6 of 40 CFR prohibits particulate emissions that would contribute to an exceedance in the ambient air of 50 micrograms per cubic meter annual arithmetic mean, or 150 micrograms per cubic meter for any 24-hour average for no more than one day per year. Colorado's regulations prohibit particulate emissions that would contribute to an exceedance in the ambient air of 75 micrograms per cubic meter in any 24-hour period (not to occur more than once each year). Colorado also has a secondary standard of 60 micrograms per cubic meter as a guide to be used in assessing implementation plans to achieve the 24-hour standard. (See 5 CCR 1001-14.)

The Colorado ambient lead standard is 1.5 micrograms per cubic meter as a monthly average (see 5 CCR 1001-10, section VI), and the federal standard is 1.5 micrograms per cubic meter as a calendar quarter (three month) average. The state standard is therefore an ARAR.

RESPONSE: The Draft Final Decision Document contains a detailed analysis of the reasons these ambient air standards are not applicable or relevant and appropriate to this treatment system.

15. Page 21, paragraph 2: The document states that the standards contained in 40 CFR Parts 60 and 61 are not ARARs due to the dissimilarity between the NESHAP sources and the IRA operations. However, Colorado regulations that are more stringent that 40 CFR Parts 60 and 61 are ARARs. For example, the Colorado mercury regulation, 5 CCR 1001-10, Regulation 8, section IV, applies to "any . . . source using mercury in any form" and is therefore more stringent than its federal counterpart.

RESPONSE: The Draft Final Decision Document contains a detailed analysis of the reasons why 40 C.F.R. Parts 60 and 61 are not ARARs. As the State noted in Specific Comment 16, the State mercury standard is identified as an ARAR.

16. Page 21, paragraph 5: Although the document correctly lists Colorado Regulation 8 concerning mercury emissions as an ARAR, the document fails to list Colorado Regulation 7 concerning VOCs.

Any new source of VOC air emissions in an ozone nonattainment areas such as the Arsenal must use emission controls representing Reasonably Available Control Technology (RACT) as determined by the Air Pollution Control Division of CDH. If the Division is unable to determine RACT, then the source may not emit more than 204 kilograms (450 pounds) of VOCs per hour or more than 1,361 kilograms (3,000 pounds) of VOCs per day. (See 5 CCR 1001-9, Regulation No. 7, sections III and IV.) Any storage or transfer of VOCs that may be involved in the air stripper or other aspects of this IRA must also meet the requirements of 5 CCR 1001-9, Regulation No. 7, Sections III and IV.

Although the State is commenting on chemical-specific, action-specific and location-specific ARARs, the State reserves the right to comment on more specific ARARs regarding emissions further in the process. When the Army further identifies the specific processes to be used in the CERCLA Wastewater Treatment System. For example, the Army states that the CERCLA Wastewater Treatment will include a metal precipitation unit. This does not provide enough information for significant State comment.

RESPONSE: Colorado Regulation No. 7 Section III and IV were reviewed and considered not to be applicable or relevant and appropriate to this treatment system. The State may comment on specific processes during the design phase of this IRA. The VOC emission levels cited by the State far exceed anticipated emissions from any air stripper included in this IRA treatment system.

17. Page 23, paragraph 2: It is unclear why the document references the Army's "significant experience" with the construction of extraction and reinjection wells. The CERCLA wastewater treatment system does not involve any extraction and reinjection wells. This statement should be deleted.

RESPONSE: Wells represent excavation at depth, which increases the potential for air emission.

18. Page 23, paragraph 3: The document states, "[t]this IRA does not contemplate construction of wells, therefore almost eliminating any chance of air emissions during construction." The implication that only well construction causes air emission is misleading. The statement should therefore be omitted.

RESPONSE: See response to Specific Comment No. 17.

19. Page 24, paragraph 2: This paragraph should be clarified to indicate that applicable regulations prohibit the transportation of particulate matter that will result in an ambient concentration above amounts set by federal and state regulations, not simply that there will be no emissions above these levels. Also, the figures in this paragraph should be corrected to indicate that the federal regulation (40 CFR 50.6) prohibits contribution to an exceedance of 50 micrograms per cubic meter annual arithmetic mean, or 150 micrograms per cubic meter for any 24-hour average for more than one day per year, and that the state regulation prohibits contribution to an exceedance of 75 micrograms per cubic meter annual geometric mean or 160 micrograms per cubic meter in any 24-hour period (not to occur more than once per year). Colorado also has a secondary standard of 60 micrograms per cubic meter as a guide to be used in assessing implementation plans to achieve the 24-hour standard. (5 CCR 1001-14.)

    The wastewater treatment IRA must not violate the provisions of 5 CCR 1001-4 which prohibit emission of odorous air contaminants from any single source in excess of specified limits.

RESPONSE: The Draft Final Decision document has been revised in response to this comment.

20. Page 24, paragraph 3: In its section on air stripper operations, the document fails to list Colorado Regulations 7, for VOCs, and Regulation 8 for mercury.

RESPONSE: The Army will utilize the emission levels for VOCs as defined in OSWER Directive 9355.0-28, "Control of Air Emissions from Superfund Air Strippers at Superfund Groundwater Sites." The Draft Final Decision Document reflects the State's Regulation 8 for mercury in the chemical-specific ARAR section, as it was in the Proposed Decision Document.

21. Page 24, paragraph 5: The text states that "the provisions of 29 CFR 1910.120 are applicable to workers at the site because these provisions specifically address hazardous substance response operations under CERCLA." Although 29 CFR 1910.120 appears applicable, it is not applicable solely by reason of specifically addressing hazardous substance response operations under CERCLA. As stated in Colorado's General Comment No. 30 and Specific Comment No. 162 concerning the Off-post EA/FS, the term "applicable" in the phrase "applicable or relevant and appropriate requirements" is not limited to those requirements specifically addressing a CERCLA site. The NCP's definition of "applicable requirements" is "those federal requirements that would be legally applicable, whether directly, or as incorporated by a federally authorized state program if the response actions were not undertaken pursuant to CERCLA section 104 or 106." Thus, "applicable" actually refers to those requirements that would govern independently of CERCLA, making the Army's interpretation of "applicable" directly contrary to the EPA's definition in the NCP. The Army's reliance on the proposed NCP is misplaced; until it becomes final the current NCP is the law and must be followed.

RESPONSE: The final NCP has been sent to the Federal Register and the Army is proceeding consistent with that document.

22. Page 24, paragraph 6: The Army rejects certain Colorado air regulations as "applicable" requirements because "they specifically do not address a remedial action or circumstance under CERCLA." As stated in the preceding comment concerning page seven, paragraph one, "applicable" requirements are not so narrowly defined.

RESPONSE: The Draft Final Decision Document was revised in response to this comment.

23. Page 27, paragraph 14: The text states, "the Army has not determined that any listed waste subject to LDR [land disposal restrictions] will be present in the influent treated by this IRA." The Army should, however, make such a determination, first by identifying what contaminants will be present in the influent and then by examining how and when section 3004 of

RCRA and the regulations at 40 CFR part 268 apply to each contaminant.

RESPONSE: The EPA is currently developing guidance concerning the Land Disposal Restrictions (LDR) and their affect on CERCLA cleanup activities. If it is determined that a land disposal restricted waste is present, the Army will act in a manner consistent with EPA guidance then in effect for the management of such as the context of CERCLA cleanup actions. The State's recommendation is more appropriately conducted during the implementation phase of this IRA.

24. Page 28, paragraph 2: The paragraph deals with ARARs regarding[sic] the disposal of solid residues from the wastewater treatment plant. The document states that, [s]ludges which remain from the treatment system will be similarly managed," referring to the preceeding[sic] paragraph on soil removal,[sic] However, neither of the two documents cited in the above paragraph, Task No. 32, Technical Plan, Sampling Waste Handling nor the EPA Memorandum of July 12, 1985 (included as an appendix to "Sampling Waste Handling") is applicable to the management and disposal of the CERCLA wastewater treatment system sludges. As the title of the first document suggests, the technical plan was designed to manage wastes from the RI/FS sampling program.

The other document cited by the Army is also intended only for the management of contaminated materials generated or disturbed during RI/FS sampling activities. Its title is "EPA Region VIII procedure for handling of materials from drilling, trench excavation, and decontamination during CERCLA RI/FS operations at the Rocky Mountain Arsenal." The first paragraph clarifies that "decontamination" in the title refers to personnel or equipment. Moreover, if the Army intended to imply that the CERCLA Wastewater treatment system sludges will be managed in the same manner as wastes discussed in Task 32, we believe that the measurements for the disposal of the sludges are too vague. As described in "Sampling Wastes Handling: on page 27, Section 3.3.5.5.

> Miscellaneous drummed wastes (contaminated trash and clothing, unknowns, etc.) will be kept in long term storage until the RI/FS has been completed or until a disposal option becomes available.

The Decision Document must set forth a specific program for disposing of these sludges. This program must comply with State and federal regulations pertaining to the management of hazardous waste.

RESPONSE: The Draft Final Decision Document outlines how sludges from this treatment system will be handled.

25. Page 28, paragraph 3: The text states that for material determined to be hazardous waste, substantive RCRA provisions are applicable to their management. The liquid received at the CERCLA Wastewater Treatment System will contain waste from RCRA units; therefore, it is the State's position that the procedural as well as substantive provisions of CHWMA apply. See General Comment 1. Therefore any treatment, storage or disposal of the liquids requires a CHWMA permit. In addition, the solid residue from the wastewater treatment plant must be treated as a hazardous waste. Any residue from the treatment of a listed hazardous waste remains a hazardous waste unless delisted.

RESPONSE: The Army disagrees that administrative provisions of the CHWMA apply to this IRA. EPA guidance clearly supports the Army's position. As stated in the Draft Final Decision Document, the Army will manage hazardous substances consistent with the EPA guidance then in effect for such actions at CERCLA sites.

26. Page 28, paragraph 4: The text states, "It is not believed that the influent for this treatment system will exhibit any of the characteristics of hazardous waste identified in Subpart C of 40 CFR Part 261 due to the low levels of contaminants anticipated to be contained in the influent." The State reiterates its position that this statement is unsubstantiated and should therefore be deleted. For example, numerous groundwater samples contain concentrations of endrin in quantities greater than 20 ppb; therefore it would be a characteristic hazardous waste under 261.24(b).

RESPONSE: Based upon the Army's experience in operating the current South Plants Wastewater Treatment Facility and the characteristics of the influent to that system, the Army does not expect that the system influent treated by this IRA will exhibit the characteristics of hazardous waste identified in Subpart L of 40 C.F.R. Part 261.

Shell Oil Company

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January 30, 1990

Office of the Program Manager for Rocky Mountain Arsenal
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Dear Mr. Campbell:

Enclosed herewith are Shell Oil's comments on Proposed Decision Document, CERCLA Wastewater Treatment System IRA.

Sincerely,

G. E. Roe
Technical Manager
Denver Site Project

/ajg

Enclosure

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SHELL OIL COMMENTS ON PROPOSED DECISION DOCUMENT CERCLA WASTEWATER TREATMENT SYSTEM IRA

GENERAL COMMENT

Shell concurs with the Army's decision to design, construct, and operate a new wastewater treatment system, instead of extensive modifications to the existing system in the South Plants area.

SPECIFIC COMMENTS

1. Section 1.0 would be clearer if another short paragraph were added to summarize the decision. The second paragraph describes the project as installation of a new system, while the third paragraph then mentions investigation of various alternatives to expand the existing system. Another paragraph would then state the decision to proceed with a new system. Otherwise, the reader does not come to the final choice until much later.

2. The FFA (22.1(m)) does not narrowly specify an assessment of the need for a new facility, as the second paragraph states. The FFA provides for ". . . a program to treat wastewater . . . or development of other appropriate measures for the disposal or reuse of such water." It is suggested that the second paragraph begin with the appropriate words for the FFA, and then follow with descriptions of the two basic approaches described (modification of existing, and new facility).

3. Section 2.0 contains only two sentences (the last paragraph) that relate to the title "History of the RMA Wastewater Treatment System." The other three paragraphs should be deleted, or the section retitled and the last paragraph put elsewhere. We suggest the former approach, and the material in Section 5.0 included. This would supply all the background information before the objectives and alternatives sections.

4. Page 5, third paragraph. The criteria listed do not relate to the"specific objectives" of the second paragraph, but rather to the goal stated in the first paragraph.

5. Page 5, third paragraph, third bullet. Change "and" to "or."

6. Page 6, third paragraph. Insert "IRA objectives and" before "CERCLA."

7. Suggest 4.1 be retitled "Shutdown of Existing System within South Plants Area" since that is in fact what is described instead of no action. This alternative would not achieve the IRA goal, or the specific objectives; hence they should be referenced, not the criteria.

8. The third paragraph is unclear. Recommend rewording that more clearly states the offsets. In a nutshell, any potential for avoiding new capital by the reuse of old equipment is more than offset by the cost of the new sewer, and the high costs of both engineering and field work needed to fit a new design to a mixed assortment of mismatched equipment. Salvage value is a separate issue that will presumably be evaluated by the South Plants closure effort;

i.e., whether equipment should be cleaned up and sold or simply scrapped as is, if possible.

9. Section 4.3 would be better titled "New System Installation" since it is following the other two alternatives just described and evaluated in 4.1 and 4.2. This would also avoid the implication that the sequence of the process alternatives in Section 4.4 is in fact the chosen process sequence.

10. In Section 6.1, the discussion of unit processes does not clarify what process sequence is proposed, and how the storage tanks fit into the sequence. The Assessment Document indicated the intent to provide capability for multiple configurations, including the sequence of the three primary organic contaminant removal processes; UV-chemical oxidation, air stripping, and carbon adsorption. This Decision Document proposes a specific sequence (UV-chemical oxidation/carbon adsorption/air stripping) for these three, while the sequence of the other processes and tankage are not clarified. Please add technical and/or economic rationale for the selection of the sequence indicated or revise to provide for the flexibility of multiple configurations.

The following comments relating to the selected unit processes are offered for your consideration:

- Of the three processes, air stripping is the least costly in terms of operating expenditure. Cost optimization would indicate utilization of this process as the first treatment step for removal of volatile organic compounds contained in the wastewater.

Likewise, activated carbon adsorption is traditionally the second least costly process and should be used as the second treatment step for removal of the bulk remaining organic contaminants in the wastewater. The most costly to operate and maintain, UV/chemical oxidation, usually finds application as the final polishing step that may or may not be required depending on the exact characteristics of the wastewater.

- Aside from economic considerations, the recommended use of UV/chemical oxidation to precede activated carbon adsorption seems questionable because of the lack of information regarding the effect of residual oxidant on the adsorption efficiency of activated carbon.

- The poor results obtained from UV/chemical oxidation pilot treatment of a concentrated wastestream such as South Plants groundwater also indicates this process to be a poor choice for use as a primary organic containment removal process. Without more concrete information regarding the types of wastes the CERCLA system may be required to treat, the primary contaminant removal processes should exhibit greater removal efficiencies than was demonstrated by the UV/chemical oxidation process.

- The discussion on air stripping (bottom of page 12) indicates that gas monitoring will be required to verify compliance with air quality emission standards. Considering the diversity of wastewaters to be treated by the system, we suggest adding capability to treat the stripper offgas if required.

- Chemical precipitation for heavy metal removal will result in treated water with greater scale forming potential. To avoid fouling of downstream processes by scale formation, provisions should be included in system design to adjust pH and/or add a scale inhibitor following precipitation, if this is not already included.

- Backwashing and handling of used filter bags potentially exposes operators to organic contaminants in the wastewater and is labor intensive. In light of this, the use of media filters that do not require operator contact for backwashing needs further consideration. Also, as stated, the media filter backwash wastewater is easily treated through the clarifier already proposed for inclusion in the treatment system. Furthermore, the cost for disposal of used filter bags needs to be considered in the overall evaluation.

RESPONSES TO COMMENTS FROM SHELL OIL COMPANY
ON THE PROPOSED DECISION DOCUMENT
DECEMBER 1989

General Comments

1. Shell concurs with the Army's decision to design, construct, and operate a new wastewater treatment system, instead of extensive modifications to the existing system in the South Plants area.

RESPONSE: Comment noted.

Specific Comments

1. Section 1.0 would be clearer if another short paragraph were added to summarize the decision. The second paragraph describes the project as installation of a new system, while the third paragraph then mentions investigation of various alternatives to expand the existing system. Another paragraph would then state the decision to proceed with a new system. Otherwise, the reader does not come to the final choice until much later.

RESPONSE: A paragraph summarizing the decision to build a new treatment system has been added to Section 1.0 of the Draft Final Decision Document.

2. The FFA (22.1(m)) does not narrowly specify an assessment of the need for a new facility, as the second paragraph states. The FFA provides for ". . . a program to treat wastewater . . . or development of other appropriate measures for the disposal or reuse of such water." It is suggested that the second paragraph begin with the appropriate words for the FFA, and then follow with descriptions of the two basic approaches described (modification of existing, and new facility).

RESPONSE: The text has been changed to reflect this comment.

3. Section 2.0 contains only two sentences (the last paragraph) that relate to the title "History of the RMA Wastewater Treatment System." The other three paragraphs should be deleted, or the section retitled and the last paragraph put elsewhere. We suggest the former approach, and the material in Section 5.0 included. This would supply all the background information before the objectives and alternatives sections.

RESPONSE: All decision documents have typically included general background information about the Arsenal that goes beyond the IRA in question. However, Section 2.0 has been renamed "Background" to reflect the general nature of this section.

4. Page 5, third paragraph. The criteria listed do not relate to the "specific objectives" of the second paragraph, but rather to the goal stated in the first paragraph.

RESPONSE: The text has been changed to reflect this comment.

5. Page 5, third paragraph, third bullet. Change "and" to "or."

RESPONSE: The text has been changed to reflect this comment.

6. Page 6, third paragraph. Insert "IRA objectives and" before "CERCLA."

RESPONSE: The text has been changed to reflect this comment.

7. Suggest 4.1 be retitled "Shutdown of Existing System Within South Plants Area" since that is in fact what is described instead of no action. This alternative would not achieve the IRA goal, or the specific objectives; hence they should be referenced, not the criteria.

RESPONSE: The Army disagrees with this comment. The existing South Plants treatment system would not be shut down but rather left in service as is. Deciding whether this objective achieves the IRA goal and specific objectives is the purpose of the Proposed Decision Document, but does not warrant dismissal of an alternative to be considered.

8. The third paragraph is unclear. Recommend rewording that more clearly states the offsets. In a nutshell, any potential for avoiding new capital by the reuse of old equipment is more than offset by the cost of the new sewer, and the high costs of both engineering and field work needed to fit a new design to a mixed assortment of mismatched equipment. Salvage value is a separate issue that will presumably be evaluated by the South Plants closure effort; i.e., whether equipment should be cleaned up and sold or simply scrapped as is, if possible.

RESPONSE: The document has been reworded to more clearly state the offsets in cost between the unrecovered salvage value and the new sewer connection. Salvage value must be included when evaluating an alternative's cost-effectiveness.

9. Section 4.3 would be better titled "New System Installation" since it is following the other two alternatives just described and evaluated in 4.1 and 4.2. This would also avoid the implication that the sequence of the process alternatives in Section 4.4 is in fact the chosen process sequence.

RESPONSE: The Army disagrees with this comment. The present title is meant to convey that a decontamination pad is planned as part of the CERCLA Wastewater Treatment System. We do not feel that the title implied equipment configuration.

10. Comments related to Section 6.1 and selected unit processes.

RESPONSE: The text has been changed to reflect flexibility of multiple configurations in the unit processes. Text that may have implied a particular sequence of unit processes in the treatment system has been deleted.

The Army appreciates your suggested wording for the selected unit processes. Each comment has been considered in revising the decision document and will be addressed during the design phase of this project.

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January 30, 1990

Mr. Donald L. Campbell
Office of the Program Manager
for Rocky Mountain Arsenal
ATTN: AMXRM-PM: Mr. Donald L. Campbell
Rocky Mountain Arsenal, Building 111
Commerce City, Colorado 80022-2180

Re: Shell Oil Company Comments on ARARs Evaluation for the Proposed Decision Document for the CERCLA Wastewater Treatment System IRA

Dear Mr. Campbell:

Shell Oil Company submits the following comments on the ARARs evaluation in the Proposed Decision Document for the CERCLA Wastewater Treatment System IRA, dated December 1989.

With respect to the chemical-specific ARARs that the Army has proposed as relevant and appropriate, Shell continues to object to all ARAR levels based on CAG methodology, including those for aldrin, benzene, carbon tetrachloride, DDT, DDE, 1,2-dichloroethane, 1,1-dichloroethylene, 1,2-trichloroethane, trichloroethylene, and vinyl chloride. Shell further objects to 10^{-6} risk level for reasons set forth in earlier comments.

With respect to the ARAR level for acrylonitrile, Shell questions why the standard should not apply at the point of discharge to First Creek, since that standard is intended to protect aquatic life. Shell also questions why the ARARs levels for DDT, DDE, 1,2-dichloropropane, ethylbenzene, tetrachloroethylene, toluene, and 1,1,2-trichloroethane should

be relevant and appropriate since First Creek has not been designated as a water supply segment.

Shell objects to standards based on MCLs, because no one will use groundwater for drinking at the point where the Army proposes to apply the standards. These standards cover all chemicals listed under Table A of the surface water standards, as well as aldrin, arsenic, benzene, cadmium, chlordane, chromium, carbon techrachloride, chloroform, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethylene, trans-1,2-dichloroethylene, lead, mercury, 1,1,1-trichloroethane, trichloroethylene, and vinyl chloride. For the same reason, we question the chlorobenzene standard, which is based on the EPA lifetime drinking water health advisory, and the chloride level, which is based on a secondary drinking water standard.

The standards for copper, fluoride, and zinc should also apply at the boundary since there will be no exposure through agricultural uses internal to the Arsenal boundaries for the IRA.

Shell objects to the ARAR levels listed for dieldrin and endrin because they are not based on either surface or groundwater standards. Shell supports 0.03 ug/l for dieldrin, which is based on the World Health Organization guideline for drinking water quality.

With respect to TBCs, Shell has already commented on its position that "TBCs" are not supported by CERCLA. It also objects to UR estimates at 10^{-6} based on CAG methodology. Shell further disagrees with the use of RfDs as ARAR levels without conducting a risk assessment, and to proposed standards being considered for clean up.

The CERCLA Wastewater Treatment System is being designed to treat organic compounds, and will be able to treat these compounds to the current Certified Reporting Limits (CRLs).

Shell reiterates its comment regarding 40 C.F.R. Part 60, Subpart Kb (storage vessels).

The Army states that it will apply best practicable control technology to air stripper emissions, which means that it will use vapor phase carbon adsorption technology. However, the use of this technology is inconsistent with the

text at page 8 where the Army indicates that it will only monitor the stack gases.

Shell reserves the right to comment on how any guidance regarding the land disposal restrictions would be applied in the context of this IRA. It hereby incorporates comments submitted on the Supplemental Notice and Request for Comment Regarding the Applicability of Land Disposal Restrictions to CERCLA Response Actions (54 Fed. Reg. 41,566 (Oct. 10, 1989)), which were attached to our December 22, 1989 Comments on the Proposed Decision Documents for M-1 Settling Basins, Motor Pool Area, Rail Classification Area, and Lime Settling Basins.

Very truly yours,

Edward J. McGrath /cw

Edward J. McGrath

EJM/lsb

cc: Colonel Daniel R. Voss
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RESPONSES TO COMMENTS FROM SHELL OIL COMPANY
ON APPLICABLE OR RELEVANT AND APPROPRIATE
REQUIREMENTS FOR THE CERCLA WASTEWATER
TREATMENT SYSTEM IRA
DECEMBER 1989

Specific Comments

1. With respect to the chemical-specific ARARs that the Army has proposed as relevant and appropriate, Shell continues to object to all ARAR levels based on CAG methodology, including those for aldrin, benzene, carbon tetrachloride, DDT, DDE, 1,2-dichlorethane, 1,1-dichloroethylene, 1,2-trichloroethane, trichloroethylene, and vinyl chloride. Shell further objects to 10^{-6} risk level for reasons set forth in earlier comments.

RESPONSE: The Army is aware of Shell's position concerning CAG methodology and considers this an issue which Shell, if they desire, should pursue with the appropriate divisions within EPA headquarters which have responsibility for developing methodology for standard setting. The Army will continue to follow the standards developed by EPA and apply EPA guidance in developing approaches to the Arsenal cleanup. The Army believes that use of a 10^{-6} risk level, as a point of departure is consistent with current EPA guidance, as reflected in the proposed NCP.

2. With respect to the ARAR level for acrylonitrile, Shell questions why the standard should not apply at the point of discharge to First Creek, since that standard is intended to protect aquatic life. Shell also questions why the ARARs levels for DDT, DDE, 1,2-dichloropropane, ethylbenzene, tetrachloroethylene, toluene, and 1,1,2-trichloroethane should be relevant and appropriate since First Creek has not been designated as a water supply segment.

RESPONSE: The ARAR levels for the compounds identified by Shell in this comment are all derived from State standards which were more stringent than any identified Federal standard. The determination that such standards are relevant and appropriate in the context of this IRA is consistent with EPA guidance as contained in the NCP.

3. Shell objects to standards based on MCLs, because no one will use groundwater for drinking at the point where the Army proposes to apply the standards. These standards cover all chemicals listed under Table A of the surface water standards, as well as aldrin, arsenic, benzene, cadmium, chlordane, chromium, carbon techrachloride, chloroform, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethylene, trans-1,2-dichloroethylene, lead, mercury, 1,1,1-trichloroethane, trichloroethylene, and vinyl chloride. For the same reason, we question the chlorobenzene standard, which is based on the EPA lifetime drinking water health advisory,

and the chloride level, which is based on a secondary drinking water standard.

RESPONSE: The Army believes that the approach taken in this IRA concerning the identification of MCLs and similar state standards as relevant and appropriate is consistent with the current EPA guidance concerning this matter as reflected in the NCP.

4. The standards for copper, fluoride, and zinc should also apply at the boundary since there will be no exposure through agricultural uses internal to the Arsenal boundaries for the IRA.

RESPONSE: See responses to Comments #2 and #3.

5. Shell objects to the ARAR levels listed for dieldrin and endrin because they are not based on either surface or groundwater standards. Shell supports 0.03 ug/l for dieldrin, which is based on the World Health Organization guideline for drinking water quality.

RESPONSE: The standards identified by Shell are derived from promulgated state regulations and the Army believes that these standards are relevant and appropriate in the context of this IRA, consistent with EPA guidance as contained in the NCP.

6. With respect to TBCs, Shell has already commented on its position that "TBCs" are not supported by CERCLA. It also objects to UR estimates at 10^{-6} based on CAG methodology. Shell further disagrees with the use of RfDs as ARAR levels without conducting a risk assessment, and to proposed standards being considered for clean up.

RESPONSE: Shell's comment regarding TBCs is noted and Shell is referred to previous Army responses to this concern. The UR estimate of 10^{-6} is a point of departure utilized consistent with EPA guidance. See also response to Comment #1.

7. The CERCLA Wastewater Treatment System is being designed to treat organic compounds, and will be able to treat these compounds to the current Certified Reporting Limits (CRLs).

RESPONSE: The CERCLA Wastewater Treatment System will also include treatment for inorganics and metals.

8. Shell reiterates its comment regarding 40 C.F.R. Part 60, Subpart Kb (storage vessels).

RESPONSE: No response is necessary at this time. More specific information will be available later in the IRA process.

9. The Army states that it will apply best practicable control technology to air stripper emissions, which means that it will use vapor phase carbon adsorption technology. However, the

use of this technology is inconsistent with the text at page 8 where the Army indicates that it will only monitor the stack gases.

RESPONSE: The text on Page 12, last bullet, has been changed to state: "Stack gas monitoring will be required to verify compliance with air quality emission standards. Contaminated residue may or may not be produced by this process, depending on the need for vent gas control."

10. Shell reserves the right to comment on how any guidance regarding the land disposal restrictions would be applied in the context of this IRA. It hereby incorporates comments submitted on the Supplemental Notice and Request for Comment Regarding the Applicability of Land Disposal Restrictions to CERCLA Response Actions (54 Fed. Reg. 41, 566 (Oct. 10, 1989)), which were attached to our December 22, 1989 Comments on the Proposed Decision Documents for M-1 Settling Basins, Motor Pool Area, Rail Classification Area, and Lime Settling Basins.

RESPONSE: The Army appreciates Shell's provisions of the comments they provided to EPA concerning the applicability of land disposal restrictions to CERCLA response actions. As Shell is aware, guidance in this area is under development. The Army will act consistent with the EPA guidance then in effect concerning this issue.

United States Department of the Interior
FISH AND WILDLIFE SERVICE
FISH AND WILDLIFE ENHANCEMENT
ROCKY MOUNTAIN ARSENAL FIELD OFFICE
BUILDING 111
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TAKE PRIDE IN AMERICA

IN REPLY REFER TO:

January 30, 1990

Donald L. Campbell
Deputy Program Manager
Rocky Mountain Arsenal
Building 111
Commerce City, CO 80022-2180

Dear Mr. Campbell;

We have reviewed the Proposed Decision Document for the CERCLA Wastewater Treatment System Interim Response Action (IRA) at Rocky Mountain Arsenal. Our comments are as follows.

We support the reconsideration of modifying the existing South Plant Treatment System as a viable alternative to meet the IRA objectives. This alternative would eliminate the need to disturb and contaminate an existing undisturbed, uncontaminated site. Destruction of existing wildlife habitat should be avoided when possible. The South Plants area is already contaminated and would appear to be a logical place to store and process contaminated wastewater.

Regardless of where the facility is placed, the construction of additional holding tanks raises a concern about the potential breach of a tank or tanks and release of toxic materials in the wastewater into the surrounding environment. Apparently, EPA requires that containment capacity (berm protection) need only protect for breach of one of the three tanks, using the tanks located at Basin F as an example. We maintain that if the storage tanks are located where leakage could move downhill from an area near to or at the South Plants that complete berm protection for all stored liquids be provided. This would prevent the unlikely, nevertheless catastrophic, possibility of all tanks breaching and flooding into one or more of the lakes.

It is our understanding that transfer of the wastewater treatment plant discharge to the Sewage Treatment Plant will be via a closed system. Please correct us if this is an incorrect assumption. We request chemical and biological assurances that discharge of the wastewater, after it passes through the Sewage Treatment Plant, will not cause unacceptable acute or chronic toxic effects or a toxic response as a result of biomagnification stemming from the presence of contamination in the discharge water.

Thank you for providing us with the opportunity to review the subject document.

Sincerely,

Donald R. Gober
RMA Coordinator

RESPONSES TO COMMENTS FROM THE UNITED STATES FISH AND WILDLIFE SERVICE ON THE PROPOSED DECISION DOCUMENT, DECEMBER 1989

Comments

We support the reconsideration of modifying the existing South Plant Treatment System as a viable alternative to meet the IRA objectives. This alternative would eliminate the need to disturb and contaminate an existing undisturbed, uncontaminated site. Destruction of existing wildlife habitat should be avoided when possible. The South Plants area is already contaminated and would appear to be a logical place to store and process contaminated wastewater.

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RESPONSES: The Army's decision to locate the new CERCLA facility outside of the South Plants area was based on several factors. These considerations were evaluated in the decision process against the habitat concerns you raised. Specifically, the Army's concerns were based upon potential worker and off-post community exposure associated with South Plants soil excavation or building renovation which may be a part of modifying the existing system. Additionally, the Army was concerned about compatability with South Plants abandonment in support of eventual cleanup. Ultimately, the decision to construct a new facility northwest of the intersection of 7th Avenue and "D" Street was guided by these concerns. This location is adjacent to the South Plants and the Army will work with the Fish and Wildlife Service to minimize impacts on wildlife habitats.

With regards to your concerns about secondary containment, the Army intends to provide complete berm protection for influent storage tanks. This decision is driven by process considerations. The segregation of various influent wastewaters is contemplated as a method of simplifying treatment operations. Within this concept of segregated influent wastewater, the Army believes it will be beneficial to provide separate and complete berm protection for each storage tank. The same logic does not, however, apply to effluent storage. The Army does not believe that leakage of treated water from effluent storage tanks constitutes as significant a risk. Secondary containment for effluent storage tanks will therefore be consistent with EPA guidance. We also believe your concern of catastrophic flooding into the lower lakes is precluded by the proposed facility location previously mentioned.

The Army will utilize a closed system for discharge of treated water. The proposed decision is for discharge to the sanitary sewer system. In response to State concerns, the Army will evaluate as part of the design process, alternative disposal options. Please see the response given to the State's general comment.