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**WMCO TECHNICAL RECOMMENDATIONS FOR  
THE RESPONSE TO U.S. EPA MODIFICATIONS  
OF THE K-65 DECANT SUMP TANK REMOVAL  
ACTION WORK PLAN**

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**ENCLOSURE**

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WMCO TECHNICAL RECOMMENDATIONS FOR  
THE RESPONSE TO U.S. EPA  
MODIFICATIONS OF THE  
K-65 DECANT SUMP TANK  
REMOVAL ACTION WORK PLAN

1. U.S. EPA Modification:

All sampling and analysis must be performed in accordance with the U.S. EPA approved Quality Assurance Project Plan (QAPP). Any required revisions to the QAPP should be submitted to U.S. EPA for review and approval.

Work Plan Modification:

Even though not stated in the K-65 Decant Sump Tank Removal Action Work Plan, it is the intention of the DOE to perform sampling of the decant sump tank liquid (prior to treatment) and analysis in accordance with the protocol in SW 846 and the U.S. EPA approved Quality Assurance Project Plan (QAPP) prepared as part of the Remedial Investigation/Feasibility Study (RI/FS) Work Plan.

2. U.S. EPA Modification:

U.S. DOE must submit to U. S. EPA a preliminary design report (at approximately 30% complete), and cost estimates at the preliminary and final design stages.

Work Plan Modification:

The information included in the Work Plan is more information than is usually available at 30% design completion. The complexity of this project does not warrant the 30%, 60%, and 100% design reviews that are recommended by the OSWER Directive Number 9355.04-A. Completion of the K-65 Decant Sump Tank Removal Action Work Plan corresponds to a 50% design of a larger more complex project. The review and approval of the Work Plan was synonymous to a 50% design review cycle. With the conditional approval from the U.S. EPA for the K-65 Decant Sump Tank Removal Action Work Plan, design has continued. The 100% design package and subsequent cost estimate will be made available to the U.S. EPA for information on or before March 4, 1991 (see attached schedule).

3. U.S. EPA Modification:

Within thirty (30) days from the date of this approval, U.S. DOE is to provide a more detailed explanation and justification of time-frames required to complete tasks required for this removal action. If time-

frames can not be justified, the schedule must be modified accordingly.

Work Plan Modification:

Attached is a modified detailed schedule for implementation of the K-65 Decant Sump Tank Removal Action. The open activity bars represent the remaining duration necessary to complete the given activity. The activity bars with a thick line through the bar represents completed or partially completed activities.

The first six (6) activities shown on the schedule pertain to preparation of an approved work plan. These activities have been completed. The next ten (10) activities concern completion of the design package. With the conditional approval from the U.S. EPA for the K-65 Decant Sump Tank Removal Action Work Plan, design has continued. The completion of the 100% design package will include drawings and an equipment list. As the schedule shows this package will be submitted to the U.S. EPA for their information on or before March 4, 1991.

The next ten (10) activities relate to field activities necessary to install equipment and complete pumping and initiate treatment. The schedule presents that the pumping of the decant liquid will be initiated on or before March 27, 1991. The 30 days to complete pumping the decant sump tank is an estimate based on 11,000 gallons of liquid that will need to be pumped. Treatment of the liquid can not be initiated until the complete extended HSL analysis results are available. It is estimated that the results will be available 4 months after the approved laboratory receives the samples.

The last activities on the schedule pertain to the National Environmental Policy Act (NEPA) documentation required and preparation of a Community Relations Plan (CRP). All activities associated with the NEPA documentation have been completed. The CRP will be prepared after the 100% design package is complete.

4. U.S. EPA Modification:

Within thirty (30) days of the date of this approval, U.S. DOE must submit a list of potential Applicable or Relevant and Appropriate Requirements (ARARs) and a strategy for compliance with them.

Work Plan Modification:

The list of Applicable or Relevant and Appropriate Requirements (ARARs) and the strategy for compliance with the ARARs is included in the attached table. Classification of the decant sump tank liquid in respect to determining if the liquid is a "hazardous waste" as defined by 40 CFR 261.4 has been completed. This determination was based on the analytical results from the samples taken in October, 1990 and the historical background of the K-65 residues. This determination is included in the following paragraphs.

The contents of K-65 have been exempted from RCRA regulation by 40 CFR 261.4(a)(4), which excludes byproduct material as defined by the Atomic Energy Act of 1954, as amended, 42 USC 2011 et seq. (AEA). The AEA defines byproduct as follows:

"The term "byproduct material" means (1) any radioactive material (except special nuclear material) Yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material, and (2) the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content."

Therefore, the materials stored in K-65 Silos (Silos 1 and 2) are byproduct material under 42 USC 2011(e)(2) and exempted from RCRA regulation under 40 CFR 261.4(a)(4) and 10 CFR 962.

Analytical data of water samples from the K-65 decant sump tank indicate that metals are present at elevated levels. The presence of these metals can be explained by the brief statement which follows. The ores which yielded the residues that are stored at K-65 were native to different regions (i.e. the Belgian Congo, Australia) and while they contained common constituents (i.e. lead as a decay product or pyrite - a lead sulphide), impurities from the host or parent rock could also be present (i.e. calcium). When these ores were processed, the metals were liberated from the rock matrix and would therefore show up as TCLP metals as well as in total metals. Therefore, these metals would not be present as a result of a process, but are natural constituents in the ore. The analytical data indicates there are no organics in the decant sump tank liquid (acetone and methylene chloride present at low levels can be explained as common lab contaminations).

The decant sump tank was designed to store waters and residues generated by gravity separation in Silos 1 and 2 and/or from the under drains and perimeter drains at Silos 1 and 2. The materials stored in this sump tank would be byproduct material under 42 USC 2011(e)(2) since the contents of the tank were generated as the result of the extraction and/or concentration of processed uranium ore. Therefore, under 40 CFR 261.4(a)(4) and 10 CFR 962, the contents of this tank would be exempt from RCRA regulation as a hazardous waste. The byproduct material in Silos 1 and 2 is not considered to be low level radioactive waste under DOE order 5280.2A and would also not be considered a mixed waste, and therefore would not be regulated under RCRA. 40 CFR 261.4 and 10 CFR 962 are not included as ARARs but management of the liquid from the decant sump tank will be handled, stored, and inspected in a manner consistent with RCRA regulations.

5. U.S. EPA Modification:

Within thirty (30) days of the date of this approval, or upon receipt of analytical results by U.S. DOE or Westinghouse, U.S. DOE shall submit

the analytical results from the October 1990 sampling of the decant sump tank. Samples collected from the decant sump tank in October 1990 must be analyzed for total radionuclides, including total uranium, isotopic uranium, technetium-99, cesium-137, strontium-90, ruthenium-106, lead-210, actinium-227, and protactinium-231.

Work Plan Modification:

The following analytical results of the October 1990 sampling were submitted to the U.S. EPA on December 7, 1990 as attachments to the K-65 Decant Sump Tank Removal Action Work Plan:

- HSL Inorganics\*
- HSL Volatiles\*
- HSL Semivolatiles\*
- HSL Pesticides/PCBs\*
- Primary Drinking Water Organics\*

\*The specific list of constituents are included in the U.S. EPA approved Quality Assurance Project Plan (QAPP) prepared as part of the Remedial Investigation/Feasibility Study (RI/FS) Work Plan as Table 4-1 and Table 4-2.

The sample collected in October 1990 has been analyzed for total radionuclides as defined in the U.S. EPA approved Quality Assurance Project Plan (QAPP) prepared as part of the Remedial Investigation/Feasibility Study (RI/FS) Work Plan. The specific parameters included in the analysis are listed in Table 4-3 of the QAPP and include the following:

- Gross Alpha
- Gross Beta
- Radium 226
- Radium 228
- Strontium-90
- Technetium-99
- Isotopic Thorium
- Isotopic Uranium
- Total Uranium
- Isotopic Plutonium
- Neptunium-237
- Cesium-137
- Gamma Spectral Analysis

The preliminary results of the total radionuclide analysis of the sample collected in October 1990 are included as an attachment to these responses.

ACTIVITY ID	REM DLR	EARLY START	EARLY FINISH	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
K65 Decant Sump Tank Removal Action																							
WORKPLAN DETAILS																							
Y406047005	0	7SEP90A	12SEP90A	DOE Review & Approve Workplan (with comments)																			
Y406047006	0	12SEP90A	28SEP90A	Revise Work Plan to Incorporate DOE Comments																			
Y406047007	0	10CT90A	40CT90A	DOE REVIEW REVISED WORK PLAN																			
Y406047015	0	17OCT90A	13NOV90A	EPA Review Workplan																			
Y406047017	0	14NOV90A	11DEC90A	RESOLVE USEPA COMMENTS & RESUBMIT WORKPLAN																			
Y406047016	0	14DEC90A	10JAN91A	EPA REVIEW REVISED WORKPLAN																			
DESIGN																							
Y406053000	0	20CT90A	15NOV90A	PERF SPEC - PUMP & COLLECTION SYSTEM																			
Y406053001	0	30NOV90A	30EC90A	850% SPEC REVIEW																			
Y406053006	0	40EC90A	40EC90A	150% SPEC MEETING																			
Y406053002	0	50EC90A	18DEC90A	100% PERF SPEC - PUMP & COLLECTION SYSTEM																			
Y406053007	14	14DEC90A	25FEB91	DESIGN PACKAGE PUMP/COLLECTION SYSTEM																			
Y406053003	0	19DEC90A	24DEC90A	100% SPEC REVIEW																			
Y406053005	8	11JAN91A	15FEB91	Procure Equipment																			
Y406053008	4	26FEB91	1MAR91	DOE REVIEW DESIGN PACKAGE																			
Y406053009	20	4MAR91	29MAR91	EPA REVIEW DESIGN PACKAGE																			
FIELD IMPLEMENTATION																							
Y406096003	0	20CT90A	18OCT90A	Safety Assessment																			
Y406096011	0	8OCT90A	30OCT90A	SAMPLE LIQUID IN DECANT SUMP TANK																			
Y406096012	0	31OCT90A	5DEC90A	HSL ANALYSIS OF DECANT SUMP TANK LIQUID																			
Y406096006	14	10JAN91A	25FEB91	PREPARE WORK INSTRUCTIONS																			
Y406096001	11	4MAR91	18MAR91	Install Pumping & Collection System																			
Y406096002	16	5MAR91	26MAR91	SYSTEM TESTING																			
Y406096004	16	5MAR91	26MAR91	OPERATIONAL READINESS REVIEW																			
Y406096005	22	27MAR91	25APR91	Pump & Store Decant Liquid																			
Y406096010	30	3APR91	14MAY91	Verification Sampling																			
Y406096015	120	15MAY91	29OCT91	SAMPLE ANALYSIS																			
Y406096007	40	30OCT91	24DEC91	TREATMENT OF WATER FROM DECANT SUMP TANK																			
Y406096030	22	25DEC91	23JAN92	Final Report																			
Y406141008	0	19SEP90A	30OCT90A	DOE APPROVE AIR/NOA																			
Y406141010	0	2NOV90A	27DEC90A	DOE HQ APPROVAL OF NEPA																			
Y406141001	5	27MAR91	2APR91	ISSUE ADDENDUM TO RIFS COMMUNITY RELATIONS PLAN																			
CERCLA/NEPA DETAILS																							

Prepared by Mike Fleming & Associates			
DATE	REVISED	DESIGNED	APPROVED

Sheet 1 of 1  
 Date Date: 6FEB91  
 Plot Date: 6FEB91

Westinghouse Materials Co. of Ohio  
 K65 Decant Sump Tank Removal Action  
 Level IV Detail Schedule

Project Start: 20JAN90  
 Project Finish: 23JAN92

activity ID/early start  
 Duration activity  
 Program ID

Priavera Systems, Inc. 1984-1988

Page 1  
Received: 11/01/90

ITERL OAK RIDGE REPORT  
12/11/90 08:25:15

Work Order # 90-11-004

REPORT ADVANCED SCIENCES, INC.  
TO P.O. BOX 475  
ROSS, OH 45061-0475

PREPARED BY/RADIOLOGICAL SCIENCES LAB.  
BY 1550 BEAR CREEK ROAD  
OAK RIDGE, TN 37831

*J. Vance*  
CERTIFIED BY

ATTEN: RON THOMAS

ATTEN: EGG  
PHONE: 615-482-9707

CONTACT: JERRY VANCE

CLIENT: RI FS PER SAMPLES: 1  
COMPANY: ADVANCED SCIENCES, INC.  
FACILITY: 11603 HAMILTON CLEVELAND ROAD

WORK ID: 802.09.33  
TAKEN: \_\_\_\_\_  
TRANS: \_\_\_\_\_  
TYPE: LIQUID  
P.O. #: 865A21602-04  
INVOICE: under separate cover

*Entered 11/01/90*

SAMPLE IDENTIFICATION  
99403

TEST CODES and NAMES used on this report

ASIRPT	FORM FOR REPORTING DATA
GSPEC	GAMMA SPEC
NP237	NEPTUNIUM 237
PU238	PLUTONIUM 238
PU239	PLUTONIUM 239/240
RA226	RADIUM 226
RA228	RADIUM 228
SR90	STRONTIUM 90
TC99	TECHNETIUM 99
TH228	THORIUM 228
TH230	THORIUM 230
TH232	THORIUM 232
THTOT	THORIUM TOTAL
U234	URANIUM 234
U235	URANIUM 235/236
U238	URANIUM 238
UTOT	URANIUM TOTAL

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ITORL OAK RIDGE REPORT  
Results by Sample

Work Order # SO-11-004

SAMPLE ID 99403

FRACTION 01A TEST CODE ASIRPT NAME FORM FOR REPORTING DATA  
Date & Time Collected 10/30/90 15:30:00 Category WATER

PARAMETER	RESULT	2-SIGMA ERROR	UNITS
RA-226	557	89	pCi/l
RA-228	<96		pCi/l
NP-237	<7.3		pCi/l
PU-238	<4.2		pCi/l
PU-239/240	<4.2		pCi/l
SR-90	48.4	4.9	pCi/l
TC-99	<30.0		pCi/l
TH-228	<18.2		pCi/l
TH-230	358	67	pCi/l
TH-232	<18.2	67	pCi/l
TH-TOTAL	<164		ug/l
U-234	24712	7974	pCi/l
U-235/236	1960	558	pCi/l
U-238	24981	8058	pCi/l
U-TOTAL	57500	7420	ug/l

SAMPLE ID 99403 - CONTINUED

FRACTION 01C TEST CODE ASIRPT NAME FORM FOR REPORTING DATA  
Date & Time Collected 10/30/90 15:30:00 Category WATER

PARAMETER	RESULT	2-SIGMA ERROR	UNITS
CS-137	<27		pCi/l
RU-106	<207		pCi/l