U.S. DEPARTMENT OF ENERGY
and
U.S. ENVIRONMENTAL PROTECTION AGENCY

FEDERAL FACILITIES COMPLIANCE AGREEMENT FOR ATTAINING COMPLIANCE WITH THE REQUIREMENTS OF 40 C.F.R. PART 61, SUBPART H, AT THE MOUND PLANT MIAMISBURG, OHIO

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EPA SEEKS PUBLIC COMMENT ON AGREEMENT WITH DOE REGARDING MOUND

U.S. Environmental Protection Agency (EPA) Region 5 today announced that it will accept public comment on a proposed agreement with the Dept. of Energy (DOE) regarding its Mound Facility, Miamisburg, OH.

The proposed agreement concerns the monitoring of radionuclide emissions from the facility. A May 1992 EPA inspection of Mound found DOE activities to be out of compliance with Clean Air Act requirements regarding such monitoring.

The Federal Facility Compliance Agreement (FFCA) outlines specific activities and deadlines for making upgrades to the Mound Facility monitoring system. The FFCA and the May 1992 inspection report are available locally for public review at the Miamisburg Senior Adult Center, 305 East Central Ave, Miamisburg.

EPA will consider all comments before signing a final agreement with DOE.

Written comments must be postmarked no later than June 3, 1994, and sent to: Mr. Michael Murphy, U.S. EPA Region 5, Air and Radiation Division, Radiation Section AT-18J, 77 West Jackson Blvd., Chicago, IL 60604.

# # #

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
AIR AND RADIATION DIVISION
AIR TOXICS AND RADIATION BRANCH
RADIATION SECTION
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

Inspection Under the National Emission Standards for Emissions of Radionuclides Other Than Radon From Department of Energy Facilities

I. FACILITY IDENTIFICATION

A. Facility Location

The Mound Plant
United States Department of Energy Mound Plant Site Office
P.O. Box 66
Miamisburg, Ohio 45342

B. Responsible Official

John Alan Jones, Site Manager

II. DATE OF INSPECTION

May 5 through May 7, 1992

III. PARTICIPANTS

A. Facility

Sue Smiley, USDOE/DAO; John Jones, USDOE DAO; Michael Reker, USDOE/DAO; James Morley, USDOE/DAO; George Gartrell, USDOE/DAO; Art Kleinrath, USDOE/DAO; Frank Sprague, USDOE/AL; Beth Sellers, USDOE/AL; Michael Tullis, EG&G; Bill Farmer, EG&G; Jesse McKendree, EG&G; Mary Wilson, EG&G; Charles Friedman, EG&G; Warren Smith, EG&G; David Rakel, EG&G; Larry Klinger, EG&G; Linda Bauer, EG&G.

B. Ohio EPA

Paul Koval, OEPA; Steve James, ODH-Radiological Health; Andree Gephart, RAPCA.

C. USEPA

Eugene Jablonowski, USEPA Region 5; James Benetti, USEPA Region 5; Gregg Dempsey, USEPA ORP-LV; Joel Cehn, Contractor-SC&A.

IV. ACRONYMS AND ABBREVIATIONS USED IN THIS REPORT

AL	Albuquerque Operations Office
ANSI	American National Standards Institute
CAP-88	Clean Air Act Assessment Package-1988
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	Code of Federal Regulations
cpm	Counts Per Minute
DAO	Dayton Area Office
dpm	Disintegrations Per Minute
DQO	Data Quality Objective
EDE	Effective Dose Equivalent
EG&G	EG&G Mound Applied Technologies
EMSL-LV	Environmental Monitoring Systems Laboratory at Las Vegas
g	Grams
HEFS	High Efficiency Filtration System
milli	One thousandth
μm	Micrometer, Micron (0.000001 meter)
MDL	Minimum detection Limit
MSL	Mean Sea Level
N/A	Not Applicable or Not Available
NAREL	National Air and Radiation Environmental Laboratory
NCDPF	Nuclear Component Development and Production Plant
NESHAP	National Emission Standard for Hazardous Air Pollutants

NOAA	National Oceanographic and Atmospheric Administration
OEPA	Ohio Environmental Protection Agency
ODH	Ohio Department of Health
QA	Quality Assurance
QAPjP	Quality Assurance Project Plan
QC	Quality Control
R	Research Building
RAPCA	Regional Air Pollution Control Agency
rem	Roentgen Equivalent Man
RTG	Radioisotopic Thermoelectric Generator
SC&A	Sanford Cohen and Associates
SW	Semi-Works Building
USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency

V. OBJECTIVE/SCOPE OF INSPECTION

The objective of this inspection is to provide a baseline evaluation for the radionuclide NESHAP, 40 CFR 61, Subpart H. The inspection is intended to gather data to ascertain whether the Mound Plant is in compliance with all requirements of the regulation, and if not, which areas of the facility are out of compliance. The data gathered will support the USEPA case for development of a Federal Facility Compliance Agreement with USDOE, if necessary, to come into compliance with this regulation in a timely manner.

The scope of the inspection is to 1) perform a walk-through survey to observe all of the locations that are or are suspected of being emission points on site to determine compliance with the monitoring requirements of the regulation, and 2) examine documents on dose modelling and other recordkeeping requirements of the regulation to determine compliance.

VI. FACILITY DESCRIPTION

The Mound Plant is located on a 306-acre site in southern Montgomery County in southwestern Ohio. The site is mainly within the southern city limits of Miamisburg and is about 10 miles south-southwest of the Dayton city limits.

The Mound Plant has been operated for the Department of Energy by EG&G Mound Applied Technologies since October 1988. Previously, the site was operated by Monsanto Research, Inc. The main mission of the Mound Plant was to manufacture both non-nuclear and tritium-containing components for nuclear weapons which were assembled elsewhere. The Mound Plant was in continuous use since 1948.

Production activities were conducted in more than 100 buildings situated on two hills (the "Main Hill" and the "SM/PP Hill") and in the valley separating the two hills. The northern part of the Mound site is a heavily developed area with a high density of buildings, roads, and parking lots. The southern part of the site was purchased in 1983 and has not been developed.

Mound was involved in a number of weapon and non-weapon programs in fulfilling its mission. A wide variety of activities were, or are still, performed for the following major programs:

1. Weapons Program - Activities associated with the weapons program include research, development, and production of : detonators; timers, transducers and switches; firesets; actuators; and nuclear components. Surveillance is also performed on various components of weapons taken from stockpile. In addition, 36 products on 9 different types of ordnance are procured for other sites involved in the program.

2. Stable Isotope Program - Development of isotope separation methods for biomedical applications; molecular science research; isotope separation research and development; stable isotopes inventory program and worldwide sales; and isotope separation by chemical exchange are the major efforts conducted within the stable isotope program.

3. Safeguards Program - The safeguards programs at the Mound Plant include research and development for nuclear measurement instruments and methodology; and provide site assistance for nuclear material accountability, and calorimeter reimbursable materials.

4. Heat Source Program - Activities in the heat source program include hardware fabrication; radioactive module assembly; radioisotopic thermoelectric generator (RTG) assembly; and testing of heat sources for the production of electricity in space, in the ocean, and on land.

Also associated with this program are the receipt and monitoring of space flight RTGs after launches are completed.

5. Tritium Recovery Program - The Mound Plant receives scrap materials from other USDOE sites and recovers and purifies the tritium for future use.

As a result of historic disposal practices and contaminant releases to the environment, the Mound Plant was placed on the National Priorities List in November 1989. In August 1990, the USEPA and USDOE entered into a FFCA for remediation under CERCLA; the USDOE was deemed the lead agency.

VII. INSPECTION FINDINGS

An initial meeting of USDOE, EG&G, and USEPA staff was held. This meeting included a staff introduction, a statement of USEPA's inspection goals, the USDOE perspective on NESHAP compliance, and an overview of the Mound Plant. This meeting also included technical discussions and a statement of the Mound Plant's proposed monitor upgrade plan. The inspection agenda was finalized at the initial meeting with Mound personnel. The schedule was designed to provide the inspection team with the ability to modify the agenda as necessary to address issues that may arise during the inspection.

Performance of an escorted tour of the Mound Plant to observe all radionuclide effluent stacks, diffuse and fugitive sources of radionuclide emissions, stack monitoring systems, personnel, and equipment relevant to radionuclide effluent monitoring at Mound. The inspected buildings included HH, R, SW, T, and WD. Other inspected sections included the roof areas, filter bank areas, and the SM/PP area.

GENERAL FINDINGS

Sampling Systems

The assessment of the Mound Plant's compliance with 40 CFR 61, Subpart H began with a physical inspection of the HEFS, NCDPF, and the 1C-North and West Stack monitoring equipment associated with the SW and R Buildings. Other inspected areas were those related to the monitoring and determination of radionuclide emissions and the support of those operations. Specific Observations are addressed under the Specific findings area for the sampling systems. In general there appears to be longs runs of sample lines with many bends before the analysis equipment is reached. This may provide results that are hard to justify.

Records Inspection

A significant portion of the inspection was devoted to reviewing records that supported the calculations of the effective dose equivalent values to members of the public, ar required by 40 CFR 61.93(a). In general, the management and integrity of the records that were reviewed was acceptable. It was not difficult to trace through the records system to determine the origin of the data. The ability to perform such a trace through the multiple levels of stored records is a requirement for providing defensibility of the recorded data. The following are general comments that should be made about the records that were reviewed:

1. Several data forms reviewed did not contain revision numbers, procedure numbers, form numbers, or signature blocks for the people entering the data All data forms should be associated with a specific procedure to ensure that changes in operations are adequately reflected in the data forms. They must be properly certified by name and date in the event that data is contested or needed for legal purposes.

2. Several of the data forms required that certain data reduction operations be performed. There was no procedure for these operations to be verified by a second person. Although a check of a few of the calculations did not identify any errors, errors could be introduced because of the large number of hand calculations that are made on a routine basis. A review process should be developed to provide independent verification of all calculations.

3. The data from several forms has to be entered into a computer in order to generate information to compute the annual effective dose equivalent values. As had been stated earlier, there is not procedure for independent verification of these data input operations either.

Diffuse Sources

The draft "Memorandum of Understanding Between the USEPA and the USDOE Concerning the Clean Air Act Emission Standards for Radionuclides–40 CFR Part 61 Including Subparts H, Q, and T" clarifies the provisions of 40 CFR 61 Subpart H with regard to diffuse radionuclide emissions. The USEPA and USDOE agree that the standard of 40 CFR 61 Subpart H applies to emissions from diffuse sources such as evaporation ponds, breathing of buildings, and contaminated soils. Tentatively, USDOE will characterize diffuse sources, collect data on emissions, and evaluate their environmental impact. The USDOE will submit its methodology to the relevant USEPA regional office. The USDOE will continue to use its methodology until such time as the USEPA develops and provides its diffuse source methodology. Data on diffuse emissions and the results of analyses will become part of USDOE's Annual Air

Emission Report. Specific comments regarding diffuse sources are addressed in the Specific Comments section.

SPECIFIC FINDINGS

Sampling Systems

1. Stack monitoring system sample delivery lines contain numerous small radius bends. The 1C-North stack monitoring system sample line makes a semicircular bend within twelve (12) inches of exiting the stack wall. Appendix B ("Particle Depositions in Sample Lines") of ANSI N13.1-1969 ("Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities") recommends that elbows in sampling lines should be avoided if at all possible, but when they are required, the ben radius of the elbow should be as long as practical. Also, the design flow rates through any sample line containing an elbow should be kept low. The number of bends in the sample delivery lines needs to be reduced to ensure that representative samples are delivered to the sample analysis equipment.

2. Stack monitoring system sample delivery lines contain long horizontal runs. Particles carried in the sample airstream moving in these horizontal sections will tend to settle to the bottom of the sample delivery lines due to gravity. These losses may be significant depending on the length of the horizontal runs, inside sample delivery line diameter, sample particle diameter, sample air flow rate, and sample particle density. The deposition of sample particles in the horizontal runs should be thoroughly evaluated and the lengths of the horizontal runs be kept as short as necessary, if not thoroughly eliminated, to ensure transmission of a representative sample to the sample analysis equipment.

3. Many of the sample delivery lines have significant portions of the line exposed to the outdoor ambient environment and lack of any form of insulation or temperature control. When the ambient outdoor temperature becomes cold enough, the sampled air will become saturated with moisture and condensation will form. This condensation could affect the representativeness of both tritium and particulate samples by lowering the concentration of the radionuclide sample that reaches the analysis equipment. The length of the sample delivery lines exposed to ambient outdoor air should be minimized and heat-traced in order to reduce the potential for this condensation.

4. One of the ventilation ducts from the R building exhausts into the West Stack. The sample delivery line from this probe in this exhaust duct transmits a particulate sample to the monitors located in Room 198 of

R building. The sample line is fitted with a "T" from which the sample is split and sent to each of the monitors. Monitor B (Instrument Number 1126) is used as a backup to Monitor A (Instrument Number 1124). However, if the sample is evenly divided between the monitors, then the results of both monitors must be combined in order to determine the actual composition of the air sample.

5. All of the radionuclide sampling systems rely upon a single house vacuum system for operation. Failure of the house vacuum system would result in a loss of the continuous emissions monitoring capabilities throughout the Mound Plant. Each sampling system should have its own independent vacuum supply with the means of accessing a backup vacuum supply for emergency or maintenance purposes.

6. It was observed that several of the sample delivery lines had numerous shut-off and clean-out valves which are not controlled and cannot be locked out. The potential to compromise the integrity of sample collection exists; the valves could easily be tampered with to introduce clean air to either dilute or cut off the stack samples. New sampling system designs would ideally not include such valves, but if needed, the valves should be secured through a lock-out mechanism and procedure.

7. Most of the sample monitors did not have adequate indication of the status of the equipment with respect to instrument calibrations and source checks. This was especially true for flow rate indicators. One flow rate measurement device had a metal plate affixed to its side, stating the device's operating instructions and that the device was last calibrated in 1983. This information was written in pencil and could easily be smeared or erased. There should be visible, legible labels used on the monitoring instrumentation which provides accurate, up-to-date information on the status of the instrument with regard to calibrations, daily operational checks, and source checks.

8. The measurement sites of the sampling probes were too close to the stack and/or duct bends or transition points. Flow patterns in these locations may be severely distorted and prevent representative sampling. Section 2.1 of Method 1 in 40 CFR 60, Appendix A ("Sample and Velocity Traverses for Stationary Sources") requires that sampling and velocity measurements are to be performed at a site located at least eight (8) stack or duct diameters downstream and two (2) diameters upstream of any flow disturbances such as a bend, expansion, or contraction in the stack, or from a visible flame. All measurement sites that do not meet this criteria should be evaluated to determine the acceptability of the sampling location and probe positioning.

9. It is questionable whether the constituents measured in radionuclide emissions are sufficient to support the calculation of the effective dose equivalent to members of the public. Many radionuclides known to be contaminants at the Mound Plant are not monitored by the stack sampling systems. It was observed that no emission monitoring of Actinium or Protactinium isotopes is performed at the 1C-North stack. This stack ventilates "the cave", an area where work with these isotopes was historically performed. This is of particular concern since the dose factors for these isotopes are significantly higher than for other isotopes presently being monitored. The fact that known radionuclide constituents are not measures, and consequently, are not used in the evaluation of the effective dose to the public was also noted by the Tiger Team Assessment of the Mound Plant performed in 1989.

10. The height of wind measurement data to support the calculation of the effective dose equivalent using CAP-88 is 50 meters. The 1989 Tiger Team Assessment stated that the meteorological monitoring program does not provide sufficient data to characterize atmospheric transport and diffusion conditions for the low-level releases influenced by local terrain conditions, This is exemplified by the fact that the effluent from the WDAHR, WDALR, and WDSS emission points are subject to aerodynamic downwash conditions. The need for a supplemental meteorological station at the Mound Plant is due to the topographic relief and configuration in the local vicinity. Terrain heights at the Mound Plant range from less than 700 feet to greater than 900 feet above mean sea level (MSL). Local terrain features which can affect low-level winds during certain meteorological regimes, such as inversions, include the on-site slopes between the SM/PP Hill and the Main Hill as well as the steep slope from the plant down to the Great Miami River off-site. Therefore, wind data from the 50 meter tower located on the high terrain (near the top of the Main Hill) is not representative of low-level wind flows during inversion conditions.

Procedures

Due to the amount of time available for the inspection, a spot review of selected procedures was performed. The following documents were reviewed for their applicability to the air monitoring program at the Mound Plant:

"Quality Plan for Bioassay and Environmental Monitoring" (MD-10321, Issue 1)

"Pre-Operational Check of Continuous Alpha Air Monitors" (MD-80036, Operation 3001, Issue 1)

"Monitoring Effluent Differential Tritium Sampler" (MD-80036, Operation 5009, Issue 1)

"Tritium Gas and Tritiated Water in Stack Effluent" (MD-80030, Operation 2119, Issue 4)

The following observations are made with regard to this procedure review:

1. Paragraph 8.4 of "Preoperational Check of Continuous Alpha Air Monitors" requires that the alarm set point be set at a level just above background (approximately 200 dpm). Paragraphs 8.5, 9.2.3, and 9.5.2 indicate that the alarm setpoint should be 200 cpm. Because of the low efficiencies of this type of equipment, this is a significant difference.

2. Section Q.8 (Document Control) of "Quality Plan for Bioassay and Environmental Monitoring" requires that all reports, procedures, and documents issued and used by the Environmental Section be specifically identified by title, author, issue date, and latest revision. The procedure reviewed did not adequately meet this requirement.

3. The "Quality Plan for Bioassay and Environmental Monitoring" has the following dates on the cover page and page 2:

   3/23/92 - "This issue is authorized for use."
   3/30/92 - Issue Date
   11/18/91 - Effective Date
   11/18/91 - Change Date

   The effective date and the proposed change date are the same date. However, C.S. Friedman signed the document on 3/23/92, indicating that the plan is now authorized for use. These dates appear to be contradictory and need clarification.

4. The forms contained in "Pre-Operational Check of Continuous Alpha Air Monitors" and "Tritium Gas and Tritiated Water in Stack Effluent" do not contain issue dates or revision numbers. Once these forms are separated from the procedures, they become independent documents and need to have a clear indication of the issue number and issue date.

5. The Stack Sampler Daily Data Sheet in "Tritium Gas and Tritiated Water in Stack Effluent" does not contain any blocks for signature of the person(s) that enter data onto that form. Those who enter data onto that form are not identified and it may be difficult to resolve questions that may arise about the accuracy of the entered data.

6. The method used to calculate the stack effluent flow rate for Building 58 is of particular interest with regard to the requirements in Section Q.8 (Document Control) of the "Quality Plan for Bioassay and Environmental Monitoring". The stack effluent flow rate calculation is presented in an inter-office memorandum from R.C. Ransbottom to Ken Phipps and is dated August 5, 1983. The method for calculating the effluent flow rate is based on pitot tube measurements made on August 3, 1983. If this is the method for determining the effluent flow rate for the Building 58 stack, it must follow the same procedural development and review process as other procedures. Because of changes in building and exhaust ventilation configurations, this "procedure" may no longer be accurate and should be evaluated to establish its credibility to properly calculate the stack effluent flow rate.

7. The procedure for calculating the average effluent flow rate out of the SW, NCDPF, and the SW-219 stacks using annubar data dated June 23, 1983, and signed by K.D. Phipps also does not meet the requirements of Section Q.8 (Document Control) of the "Quality Plan for Bioassay and Environmental Monitoring". There is no issue date, revision number, acknowledgement of review for use, or operational number. This "Procedure" needs to be reassessed with the other procedures to ensure it is still acceptable.

8. It was observed and noted that a strip chart recorder for flow rate was using logarithmic chart paper, but the recorder was designed for linear chart paper. In order to convert the strip chart reading, a ruler with a photocopied "proper" linear scale taped onto it was used to derive a linear reading from the logarithmic chart paper. While this type of ingenuity to accommodate shortages in the supplies may work,it could lead to errors in data reduction. The supply system should be set up such that supplies are ordered when a preset minimum level of stored supplies is reached.

9. Section Q.13 (Test Control) of the "Quality Plan for Bioassay and Environmental Monitoring" states that administrative controls and status indicators should be used to avoid inadvertent bypassing of required steps in the Environmental Assessment and Bioassay measurement procedures. The Alpha Air Monitor Checklist should have a check-off procedure to ensure that Health Physics personnel check the calibration date of the instruments. Also, the Tricarb 4530 liquid scintillation counter had gone 18 months between calibrations (from December 27, 1989 to May 7, 1991).

Diffuse Sources

1. USDOE's "Summary of Radionuclide Air Emissions from Department of Energy Facilities for FY 1990", states that the Mound Plant provided estimates for doses resulting from fugitive emissions. Potential doses from resuspended radionuclides were estimated to be 0.13 mrem per year EDE. This estimate was based on plutonium-238 samples obtained through environmental monitoring. The annual report supplied to Region 5, dated June 27, 1991, did not contain any information about this estimate. The basis for this estimate should be evaluated to determine its acceptability. All future reports should contain this information and the dose should be included in the dose used to determine compliance with the dose standard.

2. The Mound Plant's "The Mound Site Survey Project for the Characterization of Radioactive Materials in Site Soils" identifies 19 areas as having known contamination. Some of these sites contain elevated levels of cobalt-60, cesium 137, actinium-227, and thorium, in addition to plutonium-238. However, the environmental monitoring program only analyzes for plutonium-238 and tritium. The Mound Plant should provide justification for why the environmental samples are not analyzed for these other fission/activation products.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5

UNITED STATES DEPARTMENT OF ENERGY and UNITED STATES ENVIRONMENTAL PROTECTION AGENCY	)	FEDERAL FACILITIES COMPLIANCE AGREEMENT FOR ATTAINING COMPLIANCE WITH THE REQUIREMENTS OF 40 C.F.R. PART 61, SUBPART H, AT THE MOUND PLANT, MIAMISBURG, OHIO

I. INTRODUCTION

The United States Environmental Protection Agency (U.S. EPA) and the United States Department of Energy (U.S. DOE), hereinafter referred to collectively as the parties, enter into this Federal Facility Compliance Agreement (Agreement) pursuant to Executive Order 12088, October 13, 1978 (43 Fed. Reg. 47707, October 17, 1978). The Office of Management and Budget (OMB) will take cognizance of this Agreement pursuant to their respective duties to assure compliance with the environmental laws under Executive Order 12088 and the particular statutes herein addressed.

II. SCOPE

1. The parties enter into this Agreement to ensure that U.S. DOE operates its Mound Plant in Miamisburg, Ohio (the Mound Plant), located approximately 16 km (10 mi) southwest of Dayton, Ohio, in compliance with the requirements of the National Emission Standards for Emissions of Radionuclides Other Than

Radon From Department of Energy Facilities, 40 C.F.R. Part 61, Subpart H.

2. This Agreement shall apply to U.S. DOE, its officers, successors in office, agents, employees, and contractors of the Mound Plant. U.S. DOE agrees to give notice of this Agreement to any subsequent owner and/or operator prior to the transfer of ownership or the obligation of a new contractor and/or operator and shall simultaneously notify U.S. EPA of any change or transfer.

3. The parties recognize the authority of the State of Ohio as described at 40 C.F.R. § 61.17.

III. AUTHORITIES

4. Pursuant to Section 118(a) of the Clean Air Act (CAA), 42 U.S.C. § 7418(a) (West 1983 & Supp. 1991), "[e]ach department, agency, and instrumentality of the executive, legislative and judicial branches of the Federal government having jurisdiction over any property or facility or engaged in any activity resulting, or which may result, in the discharge of air pollutants, and each officer, agent, or employee thereof, shall be subject to, and comply with, all Federal, State, interstate, and local requirements, administrative authority, and process and sanctions respecting the control and abatement of air pollution in the same manner, and to the same extent as any nongovernmental entity."

5. Section 112 of the Act, 42 U.S.C.A. § 7412 (West 1983 & Supp. 1991) authorizes the Administrator of the U.S. EPA to promulgate National Emission Standards for Hazardous Air Pollutants (NESHAPs) and prohibits owners or operators from operating subject stationary sources in violation of an applicable NESHAP regulation.

6. On November 7, 1985, pursuant to Section 112 of the CAA, 42 U.S.C. § 7412 (1988), U.S. EPA promulgated, among other requirements, general NESHAPs monitoring requirements which are applicable to U.S. DOE's operation of NESHAP monitoring systems at the Mound Plant.

7. On December 15, 1989, pursuant to Section 112 of the CAA, 42 U.S.C. § 7412 (1988), U.S. EPA promulgated National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities (54 Fed. Reg. 51695) which was codified at 40 C.F.R. Part 61, Subpart H (hereinafter "Subpart H").[1]

8. The parties also enter into this Agreement pursuant to U.S. DOE's authority under the Atomic Energy Act, as amended, 42 U.S.C. §2011 et seq.

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[1]Section 301 of the November 15, 1990, Clean Air Act Amendments, Pub. L. No. 101-549, 104 Stat. 2399, 2562, added Section 112(q) of the CAA, 42 U.S.C. § 7412(1) (West 1983 & Supp. 1991), which provides, in part, that "[a]ny standard in effect before November 15, 1990, shall remain in force and effect after such date."

IV. DEFINITIONS

Effective Dose Equivalent means the sum of the products of absorbed dose and appropriate factors to account for differences in biological effectiveness due to the quality of radiation and its distribution in the body of reference man. The unit of dose equivalent is the rem. The method for calculating effective dose equivalent and the definition of reference man are outlined in the International Commission on Radiological Protection's Publication No. 26.

Environmentally Beneficial Project means any project undertaken at or in the vicinity of the Mound Plant which improves or further protects the quality of the air and may include projects which prevent or reduce air pollution, restore the quality of the air, provide supplemental environmental auditing to prevent or reduce air pollution, or increase public awareness of air pollution, laws protecting the air and ways to reduce air pollution.

Facility means all buildings, structures, and operations on one contiguous site.

Isokinetic means a condition which prevails when the velocity of air entering a sampling probe or the collector when held in the airstream is identical to the velocity of the airstream being sampled at that point.

Major Stack or Vent/Major Release Point means any release point that could contribute radionuclides into the air in quantities which could cause an effective dose equivalent in excess of 1% of the NESHAP Subpart H standard.

Minor Stack or Vent/Minor Release Point means any release point that is not termed as a major stack or vent or a major release point.

Monitor means: (1) To measure an airborne radioactive constituent or the gross content of radioactive material to evaluate the concentration over an interval of time. (2) The instrumentation or device used in monitoring.

Owner/Operator means any person who owns, leases, operates, controls, or supervises a stationary source (as defined in 40 CFR 61, Subpart A).

Radionuclide means a type of atom which spontaneously undergoes radioactive decay.

Representative means showing the quality and characteristics of the entire volume from which a sample is drawn.

Sample means a representative portion of an atmosphere of interest, or one or more of the constituents from a representative portion of the atmosphere.

Stack means any stack that emits any radionuclide into the air.

Stationary Source means any building, structure, facility, or installation which emits or may emit any air pollutant which has been designated as hazardous by the Administrator of the Environmental Protection Agency or his authorized representative.

Vent means any vent that emits any radionuclide into the air.

V. STATEMENT OF FACTS

9. For purposes of this Agreement, the following constitutes a summary of facts upon which this Agreement is based. The facts related herein shall not be considered admissions by any party and shall not be used by any person related or unrelated to this Agreement for purposes other than determining the basis of this Agreement. Nothing shall prevent any person related or unrelated to this Agreement from using for any purpose independent evidence which verifies the summary of facts.

10. U.S. DOE owns the Mound Plant which occupies 1.24 km^2 (306 acres) and is located approximately 16 km (10 mi) southwest of Dayton, Ohio.

11. Operations at the Mound Plant began in 1949 for the production of nuclear weapons components. Currently, U.S. DOE activities at the plant include: (1) research, development, engineering, production, and surveillance of components for U.S. DOE weapons programs; (2) separation, purification, and sale of

stable isotopes; and (3) U.S. DOE programs in nuclear safeguards and waste management, heat source testing, and fusion fuel systems.

12. For different periods of time throughout the history of operations at Mound, various radionuclides have been used at the Mound Plant, including actinium-227, americium-241, bismuth-207, cesium-137, cobalt-60, hydrogen-3, neptunium-237, neptunium-239, plutonium-238, plutonium-239, plutonium-240, plutonium-241, plutonium-242, polonium-208, polonium-209, polonium-210, protactinium-231, radium-226, radon-222, strontium-90, thorium-228, thorium-229, thorium-230, thorium-232, uranium-233, uranium-234, uranium-235, and uranium-238. At the present time hydrogen-3 and plutonium-238 are the primary radionuclides in use at Mound.

13. On May 5 through 7, 1992, U.S. EPA representatives inspected the Mound Plant for compliance with the requirements of 40 C.F.R. Part 61, Subpart H.

14. Based upon information gathered during the May 5 through 7, 1992, inspection, U.S. EPA has determined that U.S. DOE's activities at the Mound Plant are not in compliance with the requirements of 40 C.F.R. Part 61, Subpart H, National Emission Standards for Emissions of Radionuclides Other Than Radon From Department of Energy Facilities. Specifically, U.S. DOE's activities do not satisfy the requirements of 40 C.F.R. § 61.93 and § 61.94, nor meet the standard quality control and quality assurance objectives of the sampling and analysis

methodologies referenced in 40 C.F.R. Part 61. U.S. DOE disagrees with U.S. EPA's characterization of the NESHAP compliance status of the Mound Plant, but desires to enter this agreement in an effort to resolve the differences between the parties.

VI. COMPLIANCE WORK PLAN

15. Except as otherwise noted below, within ninety (90) days after the effective date of this Agreement, U.S. DOE shall submit to U.S. EPA a Compliance Work Plan which shall consist of the following:

a. Section 1 shall be an introduction that: (1) describes the purpose of the Compliance Work Plan and the Agreement; and (2) summarizes the activities to be performed to ensure compliance with 40 C.F.R. 61, Subpart H.

b. Section 2 shall be a site description that incorporates pertinent portions of the following documents:

(1) to describe historic activities and radioactive emissions:

(a) Mound Final Environmental Impact Statement, DOE/EIS-0014;

(b) Remedial Investigation/Feasibility Study, Operable Unit 9, Site-Wide Work Plan, Mound Plant;

(2) to provide current air emission rates and dose levels:

(a) Mound Site Environmental Report for Calendar Year 1992, MLM-3778;

(3) to describe stacks and radionuclides at Mound subject to 40 C.F.R. 61, Subpart H:

(a) Radionuclide Air Emissions Annual Report for Calendar Year 1992;

(4) to provide information about minor release points which are not subject to continuous monitoring:

(a) Radionuclide Air Emissions Annual Report for Calendar Year 1992;

(b) new material to be developed pursuant to paragraph 18 herein which demonstrates that only periodic confirmatory measurements are necessary for certain minor release points at Mound.

c. Section 3 shall characterize the air emission sources at Mound and describe the monitoring of air emissions at stacks subject to continuous monitoring by providing pertinent portions of the following documents:

(1) to characterize each stack system:

(a) compilation of currently existing, but unpublished, material describing the physical parameters of the stacks and the HEPA filter performance specifications;

(2) to describe the monitoring equipment to be installed:

(a) copies of vendor literature;

(b) drawing package in 11" x 17" format and accompanying specifications which will be included in the request-for-proposal package;

(c) pursuant to paragraph 31, within one hundred and eighty (180) days after the installation of the system, as-built drawings of the monitoring equipment;

(d) new material to be developed to describe the investigation and alarm levels and to document the rationale for not sampling isokinetically on the Nuclear Components Development and Production Facility stack;

(3) to describe the sample collection and measurement procedures and the data management strategy:

(a) new material to be developed;

(4) to demonstrate that particle size distribution measurements are unnecessary:

(a) new material to be developed;

(b) relevant sections of the Environmental Regulatory Guide for Radiological Effluent Monitoring and Environmental Surveillance, DOE/EH-0173T;

(5) to describe pertinent considerations regarding cross-sectional homogeneity of radionuclide distribution at the sampling points:

(a) vendor data for fans;

(b) new material to be developed.

d. Section 4 shall assess the radionuclides which may result in airborne emissions from diffuse sources by providing pertinent portions of the following documents:

(1) to describe known or suspected ground contaminants:

(a) Remedial Investigation/Feasibility Study, Operable Unit 9, Site-Wide Work Plan, Mound Plant;

(b) The Mound Site Survey Project for the Characterization of Radioactive Materials in Site Soils, MLM-3517.

(2) to provide information about the radionuclides used at Mound which have a potential to contribute to off-site dose:

(a) Documentation compiled to respond to Tiger Team finding R/CF-1;

(b) Monitoring the Fate of Radionuclides Released to the Environment, MLM-3756.

e. Section 5 shall provide a schedule for accomplishing the activities required by this Agreement.

f. Section 6 shall provide a description of the meteorological monitoring program as performed to support radionuclide NESHAP compliance by providing a copy of relevant sections of:

(1) Environmental Monitoring Plan for Mound, MLM-3752.

g. Section 7 shall describe the Mound environmental surveillance program by providing pertinent portions of the following documents:

(1) Environmental Monitoring Plan for Mound, MLM-3752;

(2) Mound Site Environmental Report for Calendar Year 1992, MLM-3778.

h. Section 8 shall provide a summary of the methods and procedures to be used to perform NESHAP compliance modeling

and dose calculations by providing pertinent portions of the following documents:

(1) Mound Site Environmental Report for Calendar Year 1992, MLM-3778;

(2) Radionuclide Air Emissions Annual Report for Calendar 1992.

i. Section 9 shall describe the quality assurance procedures by providing the following documents:

(1) new material to be developed to give a general description of the quality assurance measures;

(2) to be provided within twelve months of the effective date of this Agreement, pursuant to paragraph 38 herein, a quality assurance plan for the continuous monitoring systems to be installed at Mound.

16. In the documents which comprise the Compliance Work Plan, the U.S. DOE shall provide a listing of all radionuclides and their physical forms, which are currently, or have been historically, used, stored, produced in process or as byproduct, and known to be air contaminants at the Mound Plant. At each major release point, the documents which comprise the Compliance Work Plan shall demonstrate whether or not each of the listed radionuclides could contribute more than 0.01 mrem per year to the dose from that release point except with respect to diffuse sources which shall be documented in accordance with paragraph 39 herein.

17. In the documents provided pursuant to paragraph 15 herein, U.S. DOE shall demonstrate to U.S. EPA's satisfaction that airborne emissions from each radionuclide release point at the Mound Plant have been identified, evaluated, and assessed for their potential for release of radionuclides requiring

measurement as specified in 40 C.F.R. §61.93. This assessment is required to demonstrate that all such releases are adequately controlled and their environmental impacts properly evaluated. The potential emission rates shall be estimated by assuming normal operation with no pollution control equipment. The results of this evaluation shall provide the basis for the Mound Plant's effluent monitoring program which will be documented in the Compliance Work Plan. Whenever a new or existing source is constructed or modified, U.S. DOE shall comply with the requirements of 40 C.F.R. §61.07, §61.08, §61.09, and §61.96.

18. For minor release points, which have a potential to discharge radionuclides into the air, U.S. DOE shall provide written documentation which demonstrates to the satisfaction of U.S. EPA that only periodic confirmatory measurements are necessary.

19. U.S. DOE shall monitor all emissions of radionuclides from major stacks and vents at the Mound Plant in accordance with the requirements of the following reference methods and guidance documents except as otherwise agreed by U.S. EPA:

a. 40 C.F.R. Part 60, Appendix A, Reference Method 1, "Sample and Velocity Traverses for Stationary Sources," will be used to determine where and how many velocity measurements must be taken.

b. 40 C.F.R. Part 60, Appendix A, Reference Method 2, "Determination of Stack Gas Velocity and Volumetric Flow Rate," will be used to determine stack gas velocity, static pressure, and volumetric flow rate.

c. 40 C.F.R. Part 60, Appendix A, Reference Method 4, "Determination of Moisture Content in Stack Gases," will be used to determine moisture content in stack gases.

d. 40 C.F.R. Part 61, Appendix B, Reference Method 114, "Test Methods for Measuring Radionuclide Emissions from Stationary Sources," will be used to determine how radionuclides will be collected and measured.

e. ANSI N13.1-1969 "Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities," including the guidance presented in Appendix A, Appendix B and Appendix C, will be used to determine how the effluent stream will be representatively sampled.

f. ANSI N42.18-1980 "Specifications and Performance of Onsite Instrumentation for Continuously Monitoring Radioactivity in Effluents," will be used to determine how the effluent stream will be continuously monitored.

20. Within thirty (30) days of the effective date of this Agreement, U.S. DOE shall submit to U.S. EPA a copy of the written Environmental Monitoring Plan for the Mound Plant prepared as required under DOE 5400.1. Pursuant to DOE 5400.1, the Environmental Monitoring Plan contains at least the following information relevant to the air monitoring program at Mound:

a. the rationale and design criteria for the monitoring program;

b. extent and frequency of monitoring and measurements;

c. procedures for laboratory analyses which are incorporated by reference;

d. quality assurance requirements;

e. program implementation procedures;

f. direction for the preparation and disposition of reports; and

g. descriptions of any other element relevant to the determination of the annual effective dose equivalent as required by 40 C.F.R. Part 61, Subpart H.

21. Airborne emission sampling and monitoring systems shall demonstrate that quantification of airborne radionuclide emissions is timely, representative, and adequately sensitive.

The design of such systems shall begin with a characterization of the emission sources which will be included in a document provided as a part of the Compliance Work Plan. A number of factors which U.S. EPA will examine to determine the adequacy of this characterization include, but are not limited to, the following:

a. Identification of the average annual types and concentrations of the radionuclides present, based upon historical data for the period from 1982 to 1992;

b. Presence of materials that could affect the sampling and monitoring systems or detection of radionuclides;

c. Internal and external conditions that could have a deleterious effect upon the quantification of emissions, such as ambient temperature, pressure, humidity, ionizing radiation, and effluent stream characteristics such as temperature, pressure, humidity, and velocity;

d. Process descriptions and variability;

e. Issues relevant to particle size distribution of particulate materials; and

f. Cross-sectional homogeneity of radionuclide distribution at the sampling point.

22. U.S. DOE shall provide a copy of studies conducted to evaluate the operational performance or real or suspected deficiencies of systems relevant to compliance with 40 C.F.R. §61, Subpart H to U.S. EPA as they are generated and as attachments to the Mound Plant's radionuclide NESHAP annual report. U.S. DOE shall include in the drawing package provided as a part of the Compliance Work Plan, for each stack for which continuous monitoring is required by 40 CFR 61.93(b), the following physical information:

a. documentation of the important characteristics of the exhaust handling system and other structural information;

b. the pertinent characteristics of the process and process-emission control systems;

c. the sampling and measurement systems.

23. For all major stacks and vents U.S. DOE shall, in accordance with 40 C.F.R. 61.93(b)(4), continuously monitor the effluent stream of each stack and vent to determine radionuclide emissions and the annual effective dose equivalent values to members of the public. The continuous monitoring systems shall have alarms set to provide timely warnings to signal the need for corrective actions that may be necessary to prevent public or environmental exposures from exceeding the 40 C.F.R. § 61.92 standard. The radionuclide emissions data, effective dose equivalent compliance determination results, and all alarm situations shall be documented in the annual report that is required by 40 C.F.R. §61.94.

24. Except as otherwise agreed by U.S. EPA, for all major release points, U.S. DOE shall locate the effluent sample extraction sites in accordance with at least the following minimum requirements to ensure the extraction of a representative sample:

a. Samples of effluents will be extracted from a location downstream from any obstruction, preferably near the outlet, so that concentrations of the materials of concern are uniform;

b. Samples will be extracted from a location and in a manner that provides a representative sample;

c. Except for the WD Building Low Risk Stack, sample extraction sites will be located in vertical sections of the stack;

d. The absence of cyclonic flow at each extraction site will be demonstrated; and

e. When multiple inlet sampling probes are used, the velocity through each inlet will be controlled to match the average velocity of the effluent stream being sampled.

25. Except as otherwise agreed by U.S. EPA, for all major release points, U.S. DOE shall configure the sample extraction probes of the sampling systems so that they at least meet the following minimum requirements to ensure extraction of a representative sample:

a. Extraction probes and nozzles for the sampling of particulate materials, gases, and vapors will be consistent with ANSI N13.1-1969 and 40 C.F.R. Part 60, Appendix A, Method 5 for particulate materials;

b. Probes for effluent sampling will be positioned isoaxially in the stack and sized to extract at the same velocity as the effluent stream sampled (isokinetic sampling);

c. Consideration must be given to sample transport under moderate turbulence conditions to minimize the loss of any particulate materials present;

d. Probe nozzles for stack sampling shall be constructed of seamless stainless-steel tubing (or, for corrosive atmospheres, other rigid, seamless tubing that will not degrade under sampling conditions) with sharp, tapered edges;

e. The angle of taper of the inlet ports shall be 30°, and the taper will be on the outside edge to preserve a constant internal diameter;

f. Probes shall be designed so that they can be easily removed for cleaning, repair/replacement, or deposition evaluation;

g. Changes in flow direction in the sample extraction probes shall be made with bends having a curvature radius of at least five tube outside diameters;

h. Probe nozzles for the sampling of only gases and vapors shall be constructed of corrosion-resistant materials that do not react to any significant degree with the materials collected;

i. The nozzles shall be rigid to the point of collection, accumulation, or measurement;

j. When effluent samples are extracted from more than one location in the stack, each location shall provide isokinetic sampling conditions; and

k. Each individual nozzle shall be designed to extract a proportional sample at the average velocity of the effluent stream at the sampling location.

26. For all major release points, U.S. DOE shall ensure that for all radionuclide stack sampling systems, the radionuclide concentrations entering a sampling line shall be representative of the radionuclide concentrations in the stack being measured. Further, U.S. DOE shall ensure that the radionuclide concentrations provided to the radionuclide analysis equipment of each sampling system shall be representative of the radionuclide concentrations in the stack being measured.

27. Except as otherwise agreed by U.S. EPA, for all major release points, U.S. DOE shall ensure that the sample delivery lines of the sampling systems at least meet the following minimum requirements to ensure transmission of a representative sample:

a. Particulate and gaseous effluent samples shall be transported in lines that comply with ANSI N13.1-1969 and all its appendices;

b. If the material(s) of concern is in the form of gas(es) or vapor(s), the samples of gaseous effluents shall be transported in lines with no significant leakage or loss of material (by chemical reaction, condensation,

etc.) By definition in 40 C.F.R. Part 60, Appendix A, Method 5, Section 4.1.4.3, significant leakage is any leakage rate in excess of either 4% of the average sampling rate or 0.02 cfm, whichever is less;

c. Sample delivery lines shall be rigid, and adequately supported to prevent sagging and undue stress;

d. Sampling systems that directly expose the collector or monitor to the effluent stream shall be implemented whenever possible;

e. The sample delivery line inside diameter shall be constant throughout the length of the line, and materials of construction shall be selected to minimize wall losses under anticipated sampling conditions;

f. The sample delivery lines shall be constructed of corrosion-resistant, conducting material only, and shall be electrically grounded to the point where the particles are collected or accumulated;

g. Elbows in the sample delivery lines will be avoided if possible, but when they are required, the bend radius of the elbow will be at least 5 tube outside diameters, or as long as practical, whichever is greater;

h. The total number of bends in the sampling lines shall be kept at a minimum to ensure that representative samples are delivered to the monitors or sampling stations;

i. The total lengths of the sampling lines and the lengths of horizontal sections of the sampling lines shall be minimized. Sample collection devices will be located in enclosed structures that provide weather protection and maintain operating conditions in accordance with manufacturer's specifications;

j. The sampling lines shall be insulated and/or heat-traced to prevent condensation of materials under anticipated sampling conditions; and

k. No "T" fittings shall be in place along the sampling line. If a sample line is to be split to deliver a sample to a primary and a back-up monitor, flow to the monitors shall be controlled such that only one of the monitors is exposed to the effluent sample at a time. The means to achieve this shall be such to prevent losses in this flow control section of the sampling line.

28. For all major release points U.S. DOE shall ensure that the air-flow measurements such as stack, vent, probe inlet, and sample transport line flow velocity, for each of the stack or vent sampling systems, at least meet the following minimum requirements to ensure collection of representative effluent flow data:

a. Sampling system flows shall be continuously measured and measurements recorded throughout the sampling periods;

b. The sample flow measurements shall be accurate to ±5% by calibration with standards traceable to the National Institute of Standards and Technology (NIST); the continuous stack flow monitors shall be accurate to ±10% using 40 C.F.R. Part 60, App. A, Meth. 1 as the calibration procedure; and

c. Flow measuring devices used for compliance determinations shall be located downstream from the collectors.

29. U.S. DOE shall ensure that each sampling system that requires a vacuum for operation will have its own independent vacuum device, and will not rely upon a house vacuum system. The pumps and other mechanical components will be designed to operate continuously under anticipated operating conditions, with scheduled preventive maintenance and repair.

30. U.S. DOE shall ensure that all shut-off and clean-out valves on the stack and vent sampling systems are secured through lock out mechanisms. U.S. DOE shall use in the sampling systems only valves which are designed not to interfere with sample flow. U.S. DOE shall develop and implement procedures and documentation for lock-out, key custody, and status of the valves for each sampling system.

31. In accordance with the schedule established in Section 5 of the Compliance Work Plan, U.S. DOE shall submit to U.S. EPA, as a part of the documents which comprise the Compliance Work Plan, detailed engineering drawings, specifications, and documentation for the design of each of the sampling systems required by 40 CFR 61.93(b) and this Agreement. Also in accordance with the schedule established in Section 5 of the Compliance Work Plan, U.S. DOE shall submit to U.S. EPA, as addenda to the Compliance Work Plan, detailed engineering schematics and documentation for the final, as-built design of each of the sampling systems. The submittals shall include detailed engineering drawings of the effluent stacks and vents to be monitored. Subsequent modifications of any of the sampling systems will be documented in the annual NESHAP reports in accordance with 40 CFR 61.94. The submission and availability of the documentation and submittals shall be in accordance with national security consideration under the Atomic Energy Act.

32. U.S. DOE shall continue to operate a continuous meteorological monitoring program in a manner which accurately reflects the Mound Plant site conditions. A meteorological monitoring program shall be maintained that is appropriate to the activities of the Mound Plant, the topographical characteristics of the site, and the distance to critical receptors. Documentation concerning this program, including the requirements of Paragraphs 33, 34, and 35 of this Agreement, shall be provided

as a part of the documents which comprise the Compliance Work Plan.

33. U.S. DOE shall ensure that the meteorological monitoring program provides for routine inspection of accumulated data and scheduled maintenance and annual calibration of the meteorological instrumentation and data-acquisition system, at a minimum. Inspections, maintenance, and calibrations shall be conducted in accordance with written procedures, and logs of the inspections, maintenance, and calibrations shall be kept and maintained as permanent records.

34. U.S. DOE shall ensure that, for the meteorological monitoring program, wind measurements are made in locations that provide data representative of the atmospheric conditions into which material will be released and transported. Wind measurements shall be made at a sufficient number of altitudes to adequately characterize the wind at potential release heights. If meteorological measurements at existing location(s) cannot adequately represent atmospheric conditions for transport and diffusion computations due to changing operational conditions, U.S. DOE shall make supplemental measurements.

35. U.S. DOE shall ensure that meteorological information requirements for the Mound Plant are sufficient to support NESHAP compliance determination programs. Adequacy of the meteorological program shall be determined by a qualified meteorologist and provided as a part of the documents which comprise the Compliance Work Plan.

36. U.S. DOE shall maintain radiochemical and radio-analytical measurement capabilities for the Mound Plant that are adequate to demonstrate compliance with the NESHAPs standard and can support dose assessment reporting and analysis of radionuclides known to be air contaminants at the Mound Plant. Gross radioactivity analyses shall be used only as trend or screening indicators, unless documented supporting analyses provide a reliable relationship to specific radionuclide concentrations or doses.

37. The DOE Order 5400.1 Environmental Monitoring Plan provided to U.S. EPA under Paragraph 20 above includes references to required procedural documents covering the following environmental monitoring activities: environmental and effluent sampling and systems; meteorological monitoring program, laboratory analysis; data management and calculations; transport and pathway modeling; meteorological monitoring; dose calculations; and review and reporting of results. These documents shall be provided to U.S. EPA, if requested.

38. Except as otherwise agreed by U.S. EPA, U.S. DOE shall develop and implement a quality assurance plan for continuous radionuclide stack monitoring systems required by 40 C.F.R. 61.93(b) as required by 40 C.F.R. Part 61, Appendix B, Method 114. This plan shall include at least the following requirements:

a. There must be consistency and clarity in text and procedures within and amongst the quality assurance plan and documents relating to the quality assurance plan;

b. All reports, data sheets, procedures, forms, and any other quality assurance related documents issued and used shall be identified by title, author, issue date, and latest revision;

c. All documents that need to be filled out, either electronically or hand written, such as data sheets or other information forms, shall contain blocks for the name and signature of the person(s) that enter data onto those documents. If an instrument transfers data directly to a data storage device, such as a computer with a database, the name of the operator of that instrument must be attached to that data and that operator be responsible for that data's integrity. This is to ensure that a chain of custody for the analysis of particulate and tritium stack samples is established and those responsible for any data can be identified to resolve any questions that may arise about the accuracy or integrity of the data;

d. A review process shall be developed to provide independent verification of key calculations and data input operations as mutually agreed by the parties;

e. Administrative controls and status indicators shall be used to avoid inadvertent bypassing of required steps in measurement, analysis, and data-logging procedures;

f. A training program shall be established. Equipment operators shall be required to know how to operate the equipment they are responsible for, use and maintain, as well as the theory of operation of that equipment. Testing of personnel shall be used to indicate and document proficiency in using equipment related to the sampling systems and knowledge of the function and operation of the sampling systems;

g. Sampling and monitoring systems shall be calibrated before use and recalibrated any time they are subject to maintenance or modification that may affect equipment calibration. Sampling and monitoring systems shall be recalibrated at least annually and routinely checked with known sources traceable to NIST standards.

h. Equipment related to compliance determination that needs calibration shall be calibrated and its operation checked on a routine schedule and documented. Calibration of equipment shall be based on traceability to NIST standards. Dated calibration and certification stickers shall be affixed to equipment in such a way as to be easily observable and perfectly legible at all times;

i. Any guidance or procedures used for NESHAP compliance at the Mound Plant must follow uniform development and review processes;

j. Documents shall be revised as soon as possible after changes in equipment or procedures; and

k. Component replacements, such as with instruments, parts, routinely replaced items, and supplies, shall be done with matching components to ensure uniformity and accuracy of data from the complete sampling systems.

39. U.S. DOE shall identify and assess diffuse sources of radionuclide emissions that are estimated to contribute greater than 1% of 40 C.F.R. §61.92 standard. U.S. DOE shall adequately describe a diffuse source to show the radionuclides present, the form of the materials, and the factors contributing to suspension. The rationale to substantiate the approach used to assess and characterize the individual sources shall be documented. Until the U.S. EPA has developed methodologies for assessing emissions from diffuse sources, data from environmental measurements and other appropriate methods may be used to evaluate compliance with the 40 C.F.R. §61, Subpart H standard. For purposes of this paragraph, unless emissions from the source are otherwise monitored through a stack or vent, any sealed source which has had its integrity compromised shall be evaluated as a diffuse source with the results of such evaluations being documented. U.S. DOE shall provide all information required pursuant to this paragraph to U.S. EPA in the radionuclide NESHAPs annual report that U.S. DOE is required to prepare for the Mound Plant pursuant to 40 C.F.R. § 61.94.

40. Within sixty (60) days of receiving the documents comprising U.S. DOE's Compliance Work Plan (plan) for the Mound Plant, U.S. EPA shall make a determination to either approve or disapprove the plan. If U.S. EPA approves the plan, U.S. DOE shall continue to implement the plan in accordance with the schedule set forth in the Compliance Work Plan. In the event U.S. EPA disapproves the plan, U.S. DOE shall have sixty (60) days from the date of the U.S. EPA disapproval letter to revise and resubmit the plan. If U.S. DOE fails to obtain a U.S. EPA approved plan by no later than one-hundred and fifty (150) days after the date of the initial U.S. EPA disapproval letter, if any, U.S. EPA may unilaterally terminate this Agreement in its entirety.

VII. REPORTING

41. Except where other reporting deadlines are specified herein, U.S. DOE agrees to submit a quarterly report to the U.S. EPA regarding all steps undertaken to implement this Agreement in accordance with a schedule to be specified in the Compliance Work Plan. The quarterly reports shall be submitted to the U.S. EPA on or before the 20th day of the month immediately following the end of the quarter. U.S. DOE shall establish and maintain a contact person at the Mound Plant who is fully informed of the operations being conducted for Subpart H compliance. The contact person shall ensure that all questions or concerns that U.S. EPA may have are addressed. The contact person shall also provide to

U.S. EPA any requested information and documentation requested that concerns compliance with this Agreement and the NESHAPs. If any of the requested information is controlled under the Atomic Energy Act, the U.S. EPA shall handle and control it as required by law.

VIII. DELAYS AND TIME EXTENSIONS

42. If U.S. DOE anticipates delay in meeting any scheduled date required by this Agreement, including schedule dates in Section 5 of the U.S. EPA approved Compliance Work Plan, U.S. DOE shall immediately submit written notice to U.S. EPA setting forth the causes of the anticipated delay, the expected length of the delay, and a schedule of the actions U.S. DOE plans to take to minimize the length of the delay.

43. If U.S. EPA determines that U.S. DOE delay in meeting a scheduled date was for good cause, U.S. EPA may, after following the public notice and comment procedures of paragraph 59 if applicable, grant U.S. DOE an extension to that scheduled date for a period not greater than the length of delay solely attributable to the circumstances constituting good cause. Such extensions shall be in writing, signed by the Director of the Air and Radiation Division, U.S. EPA, Region 5, and deemed as incorporated into this Agreement. An extension to one scheduled date does not extend any subsequent scheduled dates.

44. Good cause shall exist for an extension when sought in regard to:

a. an event of force majeure;

b. a lack of sufficient appropriated funds;

c. a delay caused by the good faith initiation of dispute resolution or administrative or judicial action by one of the parties;

d. a delay caused, or which is likely to be caused, by the grant of an extension of time for another date in the Compliance Work Plan; or

e. any other event or series of events mutually agreed by the parties to constitute good cause.

45. Failure by the U.S. EPA to grant or deny a request for extension of time within seven (7) days of receipt of the request shall be deemed to constitute concurrence with the request for extension.

46. A force majeure shall mean any event arising from causes beyond the control of the U.S. DOE that causes a delay in or prevents the performance of any obligation under this Agreement, including, but not limited to: acts of God; fire; war; insurrection; civil disturbance; explosion; unanticipated breakage or accident to machinery, equipment or lines of pipe despite reasonably diligent maintenance; adverse weather conditions that could not be reasonably anticipated; unusual delay in transportation; restraint by court order or order of public authority; inability to obtain, at reasonable cost and after exercise of reasonable diligence, any necessary authorizations, approvals, permits or licenses due to action or inaction of any governmental agency or authority other than the U.S. DOE; delays caused by compliance with applicable statutes or regulations governing contracting, procurement or acquisition

procedures, despite the exercise of reasonable diligence by U.S. DOE; and insufficient availability of funds, if the U.S. DOE has made a timely request for such funds as part of the budgetary process as set forth in Part XIV (Funding) of this Agreement. A force majeure shall also include any strike or other labor dispute, whether or not within the control of the U.S. DOE whereby compliance with the provisions of this Agreement will be affected.

IX. EFFECTIVE DATE AND MODIFICATION

47. The effective date of this Agreement shall be the date on which it has been signed by both U.S. EPA and U.S. DOE. Prior to signing the Agreement, U.S. EPA must follow the public notice and comment requirements of Section XV herein.

48. This Agreement may be modified at any time by agreement of the parties. Any such modification shall be in writing and, unless otherwise agreed, shall be effective on the date on which the modification has been signed by both parties. Prior to signing any such modification, U.S. EPA must follow the public notice and comment requirements of Section XV herein.

X. ENVIRONMENTALLY BENEFICIAL PROJECTS

49. Purpose: Due to the unique aspects of the compliance issues at the Mound Plant, Environmentally Beneficial Projects are considered by the Parties to be appropriate for this site. In the event that U.S. DOE fails to meet any of the requirements

specified in Paragraph 50 of this Section, U.S. DOE shall in accordance with the procedures of this Section propose, obtain U.S. EPA approval for, and complete an environmentally beneficial project ("EBP").

50. Scope: This Section applies to the following requirements:

a. Due dates as shown in the CWP schedule and Paragraph 15.i. of this agreement for:

1. Issuance of contract to isokinetic system vendor;
2. Construction start date;
3. Construction end date;
4. FFCA and CWP commitments fulfilled, and;
5. Submission of Quality Assurance Procedures required pursuant to Paragraph 38 herein.

b. Due dates for the submittal of documents which comprise the CWP, all attachments and addenda items specified in Paragraph 31, and quarterly reports specified under Section VII. In order to be considered as timely submitted, these reports must evince good faith on the part of U.S. DOE by, among other things, (1) demonstrating that U.S. DOE is or has implemented the FFCA requirements and (2) including all required information;

c. The 40 C.F.R. § 61.92 emission standard;

51. Written Notice: If U.S. EPA determines that U.S. DOE has failed to meet any requirement which is listed in Paragraph 50 of this Section, U.S. EPA shall issue a written notice to U.S. DOE. U.S. DOE shall have thirty (30) days from the date it receives such notice to invoke the dispute resolution procedures of this FFCA. If U.S. DOE fails to invoke dispute resolution within this period, U.S. DOE shall be deemed to have concurred with U.S. EPA's notice.

52. Proposal: Within sixty (60) days of the date of U.S. DOE concurrence with a U.S. EPA written notice or the conclusion of dispute resolution procedures which sustain U.S. EPA's position, U.S. DOE shall submit to U.S. EPA a written EBP proposal which must include a description of the goal(s) and costs of, and schedule of activities for, the proposed project. U.S. DOE must propose an EBP that will result in prevention or reduction, recycling, or environmentally safe treatment or disposal of pollution which is not otherwise required by any Federal, State, or local law.

53. Approval: Within thirty (30) days of receiving a U.S. DOE proposed EBP, U.S. EPA shall consider, among other things, whether the environmental benefits of the project ameliorate the effects of the noncompliance, the Congressional preference for pollution prevention and reduction expressed in the Pollution Prevention Act of 1990, 42 U.S.C. §§ 11071 et seq., and any applicable or relevant U.S. EPA guidance and either approve or disapprove the project. If U.S. EPA disapproves a proposed project, U.S. DOE shall have thirty (30) days after receiving written disapproval from the U.S. EPA to submit a revised or new proposed project. If U.S. DOE fails to obtain U.S. EPA approval for an EBP by no later than one-hundred and fifty (150) days after the date of U.S. DOE concurrence with a U.S. EPA written notice or the conclusion of dispute resolution procedures which sustain U.S. EPA's position, U.S. EPA may invoke the dispute resolution procedures of this FFCA.

54. Anti-Deficiency Act: Nothing in this Section shall be construed as a requirement that U.S. DOE obligate or pay funds in contravention of the Anti-Deficiency Act, 31 U.S.C. ¶1341. U.S. DOE must specify in the schedule of activities included with its proposed EBP those activities necessary to make requests to Congress for appropriations to fully implement the EBP.

55. Costs: The parties shall use the following table for the purpose of determining the minimum cost of an EBP:

Type of Project	Amount Per Day of Noncompliance
Pollution Prevention/Reduction	$ 750
Pollution Recycling	$1,000
Environmentally Safe Treatment of Pollution	$1,250
Environmentally Safe Disposal of Pollution	$1,500

Each of the project types specified above shall be defined consistent with the provisions of the Pollution Prevention Act of 1990, 42 U.S.C. §§ 11071 et seq.

56. Performance: If U.S. DOE fails to substantively and/or timely complete a U.S. EPA approved EBP, U.S. EPA may issue a written notice to U.S. DOE and the procedures and requirements of this Section shall apply. The parties may provide additional completion time and/or amend substantive requirements of the EBP by mutual agreement of the representatives of the U.S. DOE and U.S. EPA listed in paragraph 58. Any dispute that may arise from U.S. EPA non-concurrence with a U.S. DOE requested extension or modification shall be subject to the dispute resolution procedures of this FFCA.

57. Reservations: Nothing in this Section shall be interpreted or construed as an admission by either party with respect to the issue of whether U.S. DOE is liable for civil penalties under the CAA.

XI. SUBMITTAL

58. The parties agree that all information required by this Agreement shall be submitted in writing and mailed to each addressee below:

Area Manager
U.S. DOE
Dayton Area Office
P.O. Box 66
Miamisburg, OH 45343

Director
Air and Radiation Division
U.S. EPA, Region 5 (A-18J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Director
Ohio Environmental Protection Agency
1800 WaterMark Drive
P.O. Box 1049
Columbus, Ohio 43266-0149

XII. RESOLUTION OF DISPUTES

59. The procedures of this section shall apply to any dispute that may arise under this agreement.

60. Failure by any party to invoke informal dispute resolution within thirty (30) days after any action which leads to or generates a dispute shall be deemed to be a waiver of that

party's rights under this Section of the FFCA with respect to that dispute.

61. The parties to this Agreement shall make reasonable efforts to informally resolve disputes.

62. The parties shall engage in informal dispute resolution within fifteen (15) days after either party notifies the other party that a matter is in dispute. During this informal dispute resolution period of thirty (30) days, appropriate U.S. EPA and U.S. DOE project managers shall meet or confer by telephone as many times as necessary to discuss and attempt to resolve the dispute. Resolution of the informal dispute shall be confirmed in writing by both parties.

63. If the dispute cannot be resolved informally within thirty (30) days as described in Paragraph 62, the disputing party shall submit to the other party a written statement of dispute setting forth the nature of the dispute, the work affected by the dispute, the disputing party's position with respect to the dispute, and the information which the disputing party is relying upon to support its position. This statement shall be submitted within fourteen (14) days after the expiration of the 30-day informal resolution period.

64. The disputing party shall, within the fourteen (14) day period, also submit the written statement of dispute to the Dispute Resolution Committee (DRC). Within fourteen (14) days after receipt of a written statement of a dispute, the other

party shall submit a written statement to the DRC setting forth its position on the dispute.

65. The DRC shall serve as a forum for disputes that have not been resolved informally, and shall be composed of the Area Manager for the U.S. DOE Dayton Area Office and the Director of the Air and Radiation Division, U.S. EPA, Region 5.

66. Following elevation of a dispute to the DRC, the DRC shall have twenty-one (21) days from the date of receipt to unanimously resolve the dispute and issue a written position. If the DRC is unable to unanimously resolve the dispute within this 21-day period, the written statements of dispute shall be forwarded to the Senior Executive Committee (SEC) for resolution.

67. The SEC shall serve as the forum for resolution of disputes for which an agreement has not been reached by the DRC and shall be composed of the Regional Administrator of U.S. EPA, Region 5 and the Manager of U.S. DOE's Albuquerque Operations Office. The SEC members shall meet, confer, and make every effort to resolve the dispute and issue a written decision. If the SEC does not resolve the dispute within twenty-one (21) days after receiving the written statement of dispute, the Regional Administrator shall issue a written resolution of the dispute within twenty-one (21) days following the SEC 21-day resolution process. Upon request, and prior to resolving the dispute, the Regional Administrator shall meet and confer with appropriate representatives of the U.S. DOE to discuss the action(s) under dispute.

68. The pendency of any dispute under this section shall not affect the timely performance of the parties' responsibilities pursuant to this Agreement. However, the time period for completion of work affected by such dispute(s) shall be extended for a period of time not to exceed the actual time taken to resolve any good faith dispute in accordance with the procedures specified in this part. All elements of the work required by this Agreement which are not affected by the dispute shall continue and be completed in accordance with the applicable schedule.

69. Concurrent with the resolution of a dispute pursuant to the procedures specified in this section, the parties shall, in accordance with the modification and public participation procedures of this FFCA if applicable, incorporate the resolution and final determination into the appropriate plan, schedule, or procedures. Once any necessary modifications are effective, U.S. DOE shall proceed to implement this FFCA in accordance with the amended plan, schedule or procedures.

70. Resolution of a dispute pursuant to this section of the Agreement shall be in accordance with all applicable laws, regulations and requirements and constitutes a final resolution of any dispute arising under this Agreement. U.S. EPA and U.S. DOE shall abide by all terms and conditions of any final resolution of a dispute obtained pursuant to this part of the Agreement.

71. By mutual agreement of the Parties, the time periods for dispute resolution described above may be extended or accelerated to expedite resolution.

XIII. ACCESS

72. U.S. DOE agrees that, pursuant to Section 114 of the CAA and Section 1-202 of Executive Order 12088, the Administrator or authorized representatives shall have the right of entry into, upon, and through the Mound Plant for purposes consistent with this Agreement and subject to statutory and regulatory requirements as may be necessary to protect national security. Such authority shall include the carrying out of any inspections, taking photographs, reviewing any records, observing tests, and conducting any tests which are necessary to ensure that the purposes of this Agreement are effectuated. U.S. EPA, its representatives, and its contractors shall comply with all applicable health and safety plans.

73. Information, records, submittals, or other documents produced under the terms of this Agreement by U.S. EPA or U.S. DOE shall be available to the public except: (1) those identified to U.S. EPA by U.S. DOE as classified information or as unclassified controlled nuclear information within the meaning of the Atomic Energy Act, as amended, or (2) those that could otherwise be withheld pursuant to the Freedom of Information Act or the Privacy Act, unless expressly authorized for release by the originating party. Documents or information so identified

shall be handled in accordance with applicable regulations. No document marked "draft" may be made available to the public without prior consultation with the originating party. If the document is not marked "draft" and/or no explicit claim of confidentiality accompanies it when submitted to the other party, the document may be made available to the public without further notice to the originating party.

XIV. FUNDING

74. It is the expectation of the Parties to this Agreement that all obligations of U.S. DOE arising under this Agreement will be fully funded. U.S. DOE shall take all necessary steps and make best efforts to obtain timely funding to meet its obligations under this Agreement. Any requirement for the payment or obligation of funds by U.S. DOE established by the terms of this Agreement shall be subject to the availability of appropriated funds, and no provision herein shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C. 1341. In cases where payment or obligation of funds would constitute a violation of the Anti-Deficiency Act, the dates established requiring the payment or obligation of such funds shall be appropriately adjusted. If appropriated funds are not available to fulfill U.S. DOE's obligations under this Agreement, U.S. EPA reserves the right to initiate any other action which would be appropriate absent this Agreement.

XV. TERMINATION

75. Except as otherwise set forth herein, this Agreement shall terminate upon written notification from U.S. EPA that it is satisfied that U.S. DOE has successfully implemented all requirements of this Agreement and has attained compliance with all of the requirements of 40 C.F.R. Part 61, Subpart H. The U.S. DOE may request a termination determination by sending a written request to U.S. EPA setting forth the reasons that U.S. DOE believes the requirements under this Agreement have been fully satisfied. U.S. EPA shall make a written termination determination within thirty (30) days of their receipt of such request.

XVI. PUBLIC COMMENT

76. By no later than fifteen (15) days after U.S. DOE signs the Agreement, U.S. EPA shall for a period of thirty (30) days, solicit comments on the Agreement. Thereafter, U.S. EPA shall review the comments, prepare a response to comments, and either:

a. Sign the Agreement making it effective in accordance with the terms of paragraph 45; or

b. Forward a revised Agreement to U.S. DOE which addresses relevant comments and allow U.S. DOE thirty (30) days in which to sign or refuse the revised Agreement. If U.S. DOE refuses or fails to sign the revised Agreement within the thirty (30) day period, the revised Agreement and any prior versions thereof shall be of no effect.

77. U.S. EPA shall give the public notice of, and for a period of thirty (30) days accept comments on, any of the following actions:

a. A U.S. EPA determination to approve the Compliance Work Plan;

b. A U.S. EPA determination, pursuant to paragraph 46 herein, to approve a significant modification of the Agreement and/or Compliance Work Plan;

c. A U.S. EPA determination, pursuant to paragraph 44 herein, to approve a request for an extension of time for a period of greater than one-hundred and twenty (120) days. For the purpose of determining whether an extension of time is for greater than ninety (90) days, U.S. EPA shall count the cumulative length of any previous extensions granted for the relevant scheduled due date; and

d. A U.S. EPA determination to unilaterally terminate the Agreement.

At the end of the comment period, U.S. EPA shall review all comments, issue a response to comments, and modify the Agreement, Compliance Work Plan, and/or its determination as appropriate. Nothing in this paragraph shall be interpreted to require U.S. DOE to delay work to be performed under this Agreement while public comment is being sought.

a. A U.S. EPA determination to approve the Compliance Work Plan;

b. A U.S. EPA determination, pursuant to paragraph 46 herein, to approve a significant modification of the Agreement and/or Compliance Work Plan;

c. A U.S. EPA determination, pursuant to paragraph 44 herein, to approve a request for an extension of time for a period of greater than one-hundred and twenty (120) days. For the purpose of determining whether an extension of time is for greater than ninety (90) days, U.S. EPA shall count the cumulative length of any previous extensions granted for the relevant scheduled due date; and

d. A U.S. EPA determination to unilaterally terminate the Agreement.

At the end of the comment period, U.S. EPA shall review all comments, issue a response to comments, and modify the Agreement, Compliance Work Plan, and/or its determination as appropriate. Nothing in this paragraph shall be interpreted to require U.S. DOE to delay work to be performed under this Agreement while public comment is being sought.