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INFORMATION SUBMITTAL UNDER PARAGRAPH XIII (B) OF THE 1990 CERCLA CONSENT AGREEMENT - PERCHED WATER REMOVAL ACTION

04/10/91

DOE-1098-91
DOE-FMPC/USEPA
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LETTER
OU5

Department of Energy
FMPC Site Office
P.O. Box 398705
Cincinnati, Ohio 45239-8705
(513) 738-6319

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APR 1 0 1991
DOE-1098-91

Ms. Catherine A. McCord
Remedial Project Manager
U. S. Environmental Protection Agency
Region V - 5HR-12
230 South Dearborn Street
Chicago, IL 60604

Mr. Graham E. Mitchell, DOE Coordinator
Ohio Environmental Protection Agency
40 South Main Street
Dayton, OH 45402

Dear Ms. McCord and Mr. Mitchell:

INFORMATION SUBMITTAL UNDER PARAGRAPH XIII (B) OF THE 1990 CERCLA CONSENT AGREEMENT - PERCHED WATER REMOVAL ACTION

This letter provides permit information on the CERCLA Removal Action for the removal and treatment of perched water from Plants 6, 9, 2/3, and 8. This action is designed to collect and treat Volatile Organic Compounds (VOC) and uranium-contaminated perched groundwater extracted from existing facility buildings. This system involves several above-ground holding tanks to be installed or converted from existing tanks, a water transportation system and a carbon adsorption system to remove the VOC's. All storage tanks containing untreated water will be equipped with activated carbon adsorption units on the tank vents.

Section 121 (e) of CERCLA, the revised NCP 40 CFR 300.400 (e), and Section XIII (A) of the April, 1990 CERCLA Consent Agreement provide an exemption from permitting requirements for removal or remedial actions conducted on-site.

Section XIII (B) of the 1990 CERCLA Consent Agreement requires the submittal of certain information for portions of response actions exempted from the administrative requirements. This information, included in Enclosure I, supports the fact that the substantive requirements have been satisfied for the Perched Water Removal Action. The information is categorized into air and wastewater permit sections. Enclosure II provides flow and contaminant concentration information.

If you have any questions, please contact Andy Avel at FTS 774-6161 or (513) 738-6161.

Sincerely,

Jack R. Craig
FMPC Remedial Action
Project Director

FSO:Avel

Enclosure: As stated

cc w/encl.:

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K. A. Hayes, EM-424, GTN
L. August, GeoTrans
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AR Files

cc w/o encl.:

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C. R. Holmes, USEPA-HQ
W. E. Muno, USEPA-V, 5HR-13
D. A. Ullrich, USEPA-V, 5H-12

cc: ERA Project Files

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ENCLOSURE I

PERMIT INFORMATION

[redacted]

AIR PERMITS

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1. **Identification of each permit that would be required.**

State Requirements

Permit To Install (PTI) - In 1989, the Ohio Administrative Code (OAC) was revised to exempt a number of air emission sources from requiring PTI prior to construction. Among the exemptions is "Storage tanks for water, aqueous solutions, and inorganic liquids (at standard temperature and pressure) except concentrated acids stored in tanks of greater than seven thousand five hundred gallons" [OAC 3745-31-03 (A) (1) (j)]. Therefore, an air emission PTI would not be required for the installation of the holding tanks.

Permit To Operate (PTO) - OAC 3745-35-02 requires the owner/operator apply for and obtain a PTO for any air contaminant source. There are no exemptions in the PTO rule which would apply to the holding tanks.

Federal Requirements

National Emission Standards for Hazardous Air Pollutants (NESHAP) - 40 CFR 61.07 requires the owner/operator submit an application for approval of the modification of any existing source or the construction of a new source. However, since the radionuclide emissions from the treatment system are expected to result in a lower dose than the standard prescribed in Section 61.96 (b), no application for approval under 61.07 needs to be filed. NESHAP's requires that the new or modified source not cause emissions from the FMPC to exceed the 10 mrem/year off-site dose standard (40CFR61.08b, 40CFR61.92.)

Standards of performance for New Stationary Sources (NSPS) - 40 CFR 60 Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction or Modification Commenced after July 23, 1984. This standard imposes various reporting and control requirements depending on the size of the storage tank and the vapor pressures of the VOC involved. This section exempts tanks with storage capacities of less than 40 cubic meters (10,567 gallons). As all storage tanks involved in this treatment system are below this capacity the requirements of this section do not apply.

2. **Identification of the standards, requirements, criteria, or limitations that would have to be met to obtain each such permit.**

State Requirements

OAC 3745-31-05 (A) (3) requires the use of best available technology to control emissions.

Federal Requirements

NESHAP's also requires that the new or modified source not cause emissions from the FMPC to exceed the 10 mrem/year off-site dose standard (40CFR61.08b, 40CFR61.92.)

3. **Explanation of how the response action will meet the standard, requirements, criteria, or limitations identified in Item 2 above.**

State Requirements

Best available technology to control emissions will be satisfied by the installation of activated carbon filters on the vent of each storage tank.

Federal Requirements

The use of the water treatment system will not result in emissions which exceed the NESHAP Subpart H 10 mrem/year off-site dose limit. Although detailed modeling was not performed, an engineering estimate was made to determine emissions for the annual NESHAP requirement report. The dose to the maximally exposed off-site resident resulting from 1989 FMPC emissions was reported to be 5.2 mrem. Based on dose estimates, the effective dose equivalent resulting from the water treatment operation would be less than 0.1 mrem and would therefore not cause the FMPC's total radionuclide emissions to exceed the 10 mrem/year standard

WASTEWATER PERMITS

1) **Identification of each permit that would be required.**

State Requirements

OAC 3745-31-02 prohibits the installation of a new disposal system without first obtaining a permit to install.

ORC 6111.44 and 6111.45 require that plans for treatment works, or improvements to such works, be approved by the Director of OEPA prior to initiation of construction.

The NPDES permit has certain notification/reporting requirements beyond the discharge limitations. (It is not anticipated that the nature of the discharge to the GMR will change in such a way as to violate existing discharge limitations or require a permit modification.) OEPA requires notifications for facility expansions or process modifications which result in new different or increased discharges of pollutants. There is a notification requirement under 40 CFR 122.41(l) and 40 CFR 122.42 relating to discharges of toxic pollutants that are not limited by the NPDES permit. The discharge must be classified as regular or irregular and the quantities must exceed certain notification levels.

Federal Requirements

None. (The State of Ohio has primacy in administering the NPDES program.)

2) **Identification of the standards, requirements, criteria, or limitations that would have to be met to obtain each permit.**

State Requirements

OAC 3745-31-05 details the criteria for issuing a permit to install and for approving plans. These are 1) Not prevent or interfere with the attainment or maintenance of applicable ambient water quality standards, 2) Not result in a violation of any applicable laws, and 3) employ the best available technology.

3) **Explanation of how the response action will meet the standards, requirements, criteria, or limitations identified in Item 2 above.**

State Requirements

This project will not interfere with the attainment of any water quality standards in that the perched groundwater will be treated to reduce VOC concentration levels to < 1.0 ug/l. Effluent from the VOC treatment system will be discharged to existing treatment systems for the

6

necessary treatment to meet current NPDES effluent limitations for those parameters in the groundwater subject to regulation. Best Available Technology will be satisfied with the installation of activated carbon absorption unit for VOC removal.

Based on the estimated concentrations of VOC's in the effluent, it is not anticipated that any notifications under 40 CFR 122.41 or 40 CFR 122.42 will be required.

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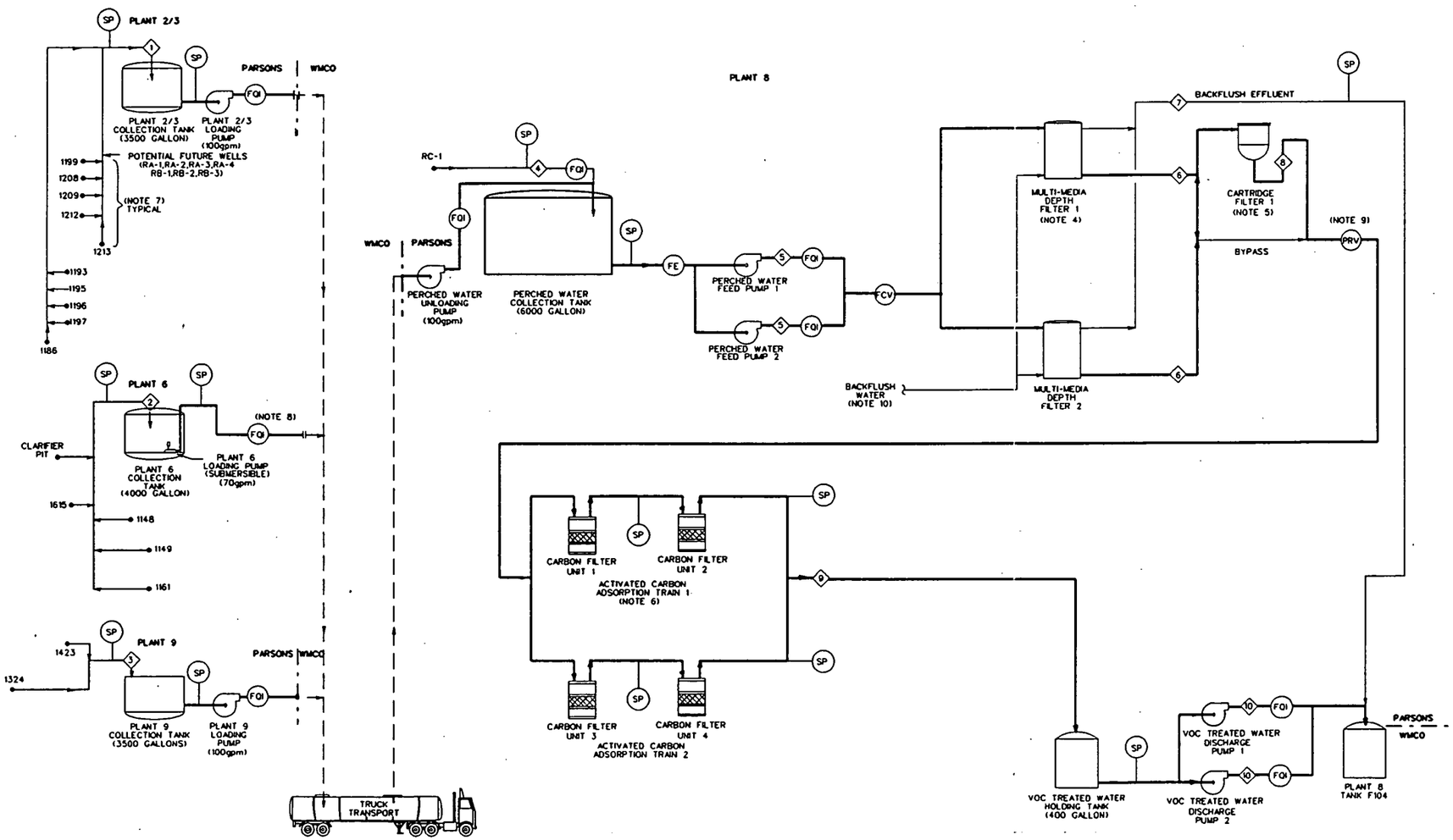
ENCLOSURE II

FLOW AND CONTAMINANT CONCENTRATION INFORMATION

[redacted]

STREAM NUMBER	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
STREAM NAME	PLANT 2/3	PLANT 6	PLANT 9	PLANT 8	TOTAL PERCHED WATER	DEPTH FILTER EFFLUENT	DEPTH FILTER BACKFLUSH	CARTRIDGE FILTER EFFLUENT	CARBON ADSORP. EFFLUENT	DISCHARGE PUMP EFFLUENT
FLOW-DESIGN (GPM)					10	10	25	10	10	10
FLOW-DESIGN (GPD) (NOTE 3)					4,800	4,800		4,800	4,800	4800
FLOW-AVE (GPD)	3,300	83	30	1,000.0	4,413	4,413	375 (NOTE 11)	4,413	4,413	4,413
PRESSURE (PSIG)					65	RANGE 50-62		RANGE 25-61	RANGE 3-5	17
CONTAMINANT (NOTE 1) (ug/L)							0.0			
TRICHLOROETHENE	0.1	2,430.0	8,040.0	0.3	101.0	101.0	0.0	101.0	1.0	1.0
1,1-DICHLOROETHENE	2.3	107.0	52.7	0.7	4.2	4.2	0.0	4.2	0.04	0.04
1,2-DICHLOROETHENE	0.0	28.5	8.7	0.0	0.6	0.6	0.0	0.6	0.01	0.01
1,1-DICHLOROETHANE	0.0	0.0	120.0	0.0	0.8	0.8	0.0	0.8	0.01	0.01
1,1,1-TRICLOROETHENE	0.0	0.0	133.0	0.0	0.9	0.9	0.0	0.9	0.01	0.01
TETRACLOROETHENE	0.1	86.6	233.0	2.8	4.0	4.0	0.0	4.0	0.04	0.04
TRIBUTYLPHOSPHATE	109.0	0.0	0.0	0.0	81.6	81.6	0.0	81.6	0.82	0.82
KEROSENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ALUMINUM (Al)	501.0	16,000.0	5,920.0	632.0	859.0	859.0	0.0	859.0	859.0	859.0
CADMIUM (Cd)	9.2	141.0	29.5	12.4	12.5	12.5	0.0	12.5	12.5	12.5
CHROMIUM (Cr)	142.0	4,010.0	1,480.0	182.0	233.0	233.0	0.0	233.0	233.0	233.0
SILVER (Ag)	57.6	1,700.0	558.0	75.5	94.0	94.0	0.0	94.0	94.0	94.0
IRON (Fe)	72.9	1090.0	410.0	75.3	94.8	94.8	0.0	94.8	94.8	94.8
MAGANESE (Mn)	491.0	4,240.0	1050.0	447.0	555.0	555.0	0.0	555.0	555.0	555.0
URANIUM (U)	20,400.0	436,000.0	241,000.0	19,000.0	29,400.0	29,400.0	0.0	29,400.0	29,400.0	29,400.0
THORIUM (Th)	22.4	29.6	55.3	37.7	26.3	26.3	0.0	26.3	26.3	25.3
TOTAL SUSPENDED SOLIDS (TSS)	61,000.0	51,500.0	1,740,000.0	61,000.0	72,200.0	14,400.0	680,000.0	720.0	720.0	720.0
OIL & GREASE	0.0	4,400.0 (NOTE 2)	5,000.0	0.0	117.0	117.0	0.0	117.0	1.2	1.2



NOTES

1. DATA WERE OBTAINED FROM: "SELECTED SAMPLE RESULTS FOR THE PERCHED WATER BORINGS" (WMCO, 1991); "FMPC WASTE WATER OVERVIEW" (WMCO, 1991); AND HAZARDOUS SUBSTANCES LIST DATA FROM INTERNATIONAL TECHNOLOGY (IT) CORP. ANALYSES. PERCHED WATER PH RANGES FROM 6 TO 7, CONDUCTIVITY RANGES FROM 0.2 TO 1.7 MICROMHOS PER CUBIC CENTIMETER.
2. AVERAGES OF WELL CONCENTRATIONS WERE ASSUMED FOR PLANT 6 WELLS WITH NO DATA.
3. THE DESIGN FLOW PER DAY IS BASED ON 8 HOURS OPERATION.
4. DEPTH FILTERS ARE TWO 100 PERCENT CAPACITY UNITS. IN THE ABSENCE OF TEST DATA, EFFICIENCY FOR REMOVAL OF TOTAL SUSPENDED SOLIDS (TSS) IS ASSUMED AT 80 PERCENT.
5. CARTRIDGE FILTER EFFICIENCY FOR REMOVAL OF TSS IS ASSUMED AT 95 PERCENT
6. GRANULAR ACTIVATED CARBON ADSORPTION UNITS ARE TWO 50 PERCENT CAPACITY TRAINS (CONSISTING OF ONE LEAD UNIT AND ONE LAG UNIT), WITH AN ASSUMED 99 PERCENT EFFICIENCY FOR REMOVAL OF VOLATILE ORGANIC COMPOUNDS (VOC'S).
7. NUMBERS INDICATE WELL BORINGS. EACH WELL HAS ITS OWN PUMP (NOT SHOWN).
8. PLANT 6 WELLS, HOLDING TANK AND PUMP BY WMCO.
9. PRESSURE REDUCING VALVE WILL REDUCE PRESSURE TO ≤ 7.5 PSIG WHICH IS MAXIMUM ALLOWABLE FOR ACTIVATED CARBON ADSORPTION UNITS.
10. BACKFLUSH SUPPLY WATER MINIMUM PRESSURE IS 40 PSIG.
11. BACKWASH VOLUME IS BASED ON AN ASSUMED ONE (1) BACKWASH PER DAY AT 375 GALLONS PER BACKWASH. THE BACKWASH CYCLE INCLUDES A RINSE OF 100 GALLONS (4 MINUTES AT 25 GPM) WHICH DISCHARGES THROUGH THE PROCESS LINE. THE RINSE IS NOT INCLUDED IN THE PROCESS FLOW.

SYMBOLS

- (SP) SAMPLE POINT
- (FCV) FLOW CONTROL VALVE
- (PRV) PRESSURE REDUCING VALVE
- (FQI) FLOW INDICATOR/TOTALIZER
- (FE) FLOW ELEMENT

PARSONS / WMCO — DESIGN INTERFACE

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	OPERATOR	DOE
			DETAILS AND DATE	
0	ISSUED FOR CONSTRUCTION			

UNITED STATES DEPARTMENT OF ENERGY
FEED MATERIALS PRODUCTION CENTER

THIS DRAWING PREPARED BY
PARSONS
THE RALPH M. PARSONS CO. - CHAS. T. MAIN, INC. - ENGINEERING SCIENCE, INC.
CINCINNATI, OHIO

PROJECT NAME
FMPC ERA
OPERABLE UNIT 3

DRAWING TITLE
PROCESS FLOW DIAGRAM
PERCHED WATER REMOVAL ACTIONS
PLANTS 2/3, 6, 8, & 9

DRAWN BY	DATE	DESIGNER CHECKED BY	DATE	CHECKED BY	DATE
R.D. PROSKI	2-6-91				

PLANT/BLDG NO.	FLOOR	SCALE	CLASS
2/3,6,8 & 9		NONE	4

SUBMITTED FOR APPROVAL (A-E, DATE) — APPROVAL RECOMMENDED (OPERATING CONTRACTOR, DATE) — APPROVED (DOE, DATE)

D.O.E. PROJECT NO.	DESIGN CONTRACT NO.	DRAWING NO.	SHEET NO.	REV. NO.
BY D.O.E. LATER	WBS 1.2.1.3.2 00-90701	93X5900F00017	F001	0

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