

DOCKET NO. 70-36 NUCLEAR FUELS CORPORATION

For Div, of Computance

GRASSLANDS ROAD MSFORD, NEW YORK 10523 914-592-9000

In reply refer to: NISM-72-43

May 3, 1972

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Director, Division of Materials Licensing U. S. Atomic Energy Commission Washington, D. C. 20545

Attention: Mr. Donald A. Nussbaumer, Chief Fuel Fabrication and Transportation Branch

Subject: Waste Management Program, AEC License No. SNM-33, Docket 70-36

Gentlemen:

Enclosed are seven copies of the description of Gulf United's Waste Management Program for Chemical Operations at Hematite, Missouri. I apologize for the delay in supplying this information but you are aware of the reasons for the delay.

Much of the information was originally submitted on March 19, 1971 in connection with a license renewal action. However, a considerable number of changes in throughput and facility utilization have occurred since then. Thus certain future plans and modifications are indefinite or have been omitted from the tables but are described here.

- ITEM PLANT. Operations in the Item Plant 1. ceased in January, 1972 as indicated in my letter of March 22, 1972 (NISM 72-21). Therefore, no improvements in effluent control are planned.
- 2. RED ROOM. Future plans for improvements in effluent control for the Red Room, as shown in the tables are based on 1970 throughput and utilization factors. Current business plans indicate much reduced throughput and utilization thereby postponing indefinitely the need for implementing the plans for improvement, with the exception of the muffle box furnaces for pyrohydrolysis. Effluent concentrations from these furnaces will be reduced to 10 CFR 20 Appendix B Table II values by December 1972 as indicated in NISM-72-21.

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GULF UNITED NUCLEAR FUELS CORPORATION

3. LABORATORY. Future plans for improvement in effluent control for the laboratory were also based on 1970 throughput and utilization factors and analysis of materials from the Item Plant. Accordingly, these plans are indefinitely postponed, with reduced effluent concentrations achieved by reduced throughput and utilization.

4. GREEN ROOM. As indicated in my letter of March 30, 1972 (NISM-72-28), the Green Room would undergo significant alteration and modification in October, 1973. Air cleaning equipment is being designed, cannot now be included in the tables and is inapplicable to much of the existing processing equipment.

We recognize that the effluent control situation at Hematite is complex and possibly confusing. Please let me know if you require clarification or interpretation of any information in the report.

Sincerely,

Peter Loysen, Manager Nuclear and Industrial Safety

PL/sm

SITE EVALUATION Chemical Operations SNM-33, Docket 70-36

Site and Location

The Chemical Operation is located on an approximate 150 acre site in a lightly populated area of east-central Missouri. The Operation is approximately threequarters of a mile northeast of Hematite and is roughly on the borderline of the townships of Joachim, Central, Plattin and Valle. These townships are part of Jefferson County.

Land Use

Jefferson County is predominately rural with 50% of the land area classified as forrest, 39% productive farming such as grain and hay, and approximately 11% is classified urban, suburban, commercial and unused or undeveloped.

The land use pattern appears to be undergoing a major change. Jefferson County is part of a dynamic growing urban region, the St. Louis Standard Metropolitan Statistical Area (SMSA), and extensive development have resulted from its growth. This has resulted in growth of new buildings, subdivisions, scattered homesites, paved streets and roads, and public facilities. Connected with this growth has been an expansion of commercial establishments. However, agricultural land uses in the new growth areas are still predominant and represent numerous large and well-kept productive farms. There are approximately 60 manufacturing establishments in Jefferson County. They are located in the areas of high population densities, usually among residential and commercial areas.⁽¹⁾

Population

Population figures for 1970 are summarized in the following table:

Township	•	Population (# of People)	Area (Sq. Miles)	Population Density (No. of People/Sq. Mile)
Joachim		21,938	74.05	296
Central	•	5,427	74.90	72 [·]
Plattin	•	4,487	105.70	42
Valle	• •	9,975	93.90	106

For the total Jefferson County, the population density is 158 people per square mile based on a total population of 105,248 persons and an area of 666.6 square miles.(2, 3)

⁽²⁾General Population Statistics, Official 1970 Census Data, Bureau of Census, 1971

(3)Land Use, Jefferson County, Missouri, Hartland Bartholomew and Associste, November 1967

⁽¹⁾ The Quest for Tomorrow-Prologue for a Plan, Jefferson County Planning and Zoning Commission, June 1969

Meteorology

General meteorological characteristics of the Chemical Operation site should be similar to those of St. Louis, the nearest U.S. Weather Bureau recording station. St. Louis is located at the confluence of the nation's two major rivers and near the geographical center of the United States. Thus, with a somewhat modified continential climate, it is in the enviable position of being able to enjoy the vicissitude of a four season climate without the undue hardship of prolonged periods of extreme cold, extreme heat or high humidity. To the south is the warm, moist air of the Gulf of Mexico, and to the north in Canada is a favorable region of cold air masses. The alternate invasion of St. Louis by air masses from those sources, and the conflict along the frontal zones where they come together, produce a variety of weather conditions, none of which are likely to persist to the point of monotony.

Winters are brisk and stimulating, but seldom severe. Snow fall has averaged less than 20 inches per winter season since 1930. Maximum temperatures remain as cold as 32° or lower less than 20 to 25 days in most years. Summers are warm with maximum temperature of 90° or higher an average of 35 to 40 days per year. The normal average annual precipitation for the St. Louis area is a little over 35 inches. The three winter months are the driest, the spring months are normally the wettest and it is not unusual to have extended periods of 1 to 2 weeks or more without appreciable rainfall from the middle of the summer into the fall. (1)

Seasonally averaged data is summarized below: .

Season	Prevailing Wind Direction	Mean Speed (Miles/Hour)	Mean <u>Temperature(^OF)</u>	Mean Precipitation(inch)
Winter	NW	10.8	36.4	2.37
Spring	S	9.8	64.4	3.91
Summer	Ŝ	7.7	74.8	3.03
Fall	S	9.6	45.8	2.47

Hydrology

Stream Flow

Liquid effluents may be discharged to the Joachim Creek. The United States Department of the Interior, Geological Survey, maintains a flow gage on Route 21A Bridge crossing the Joachim Creek at Hematite.

Provisional data has been furnished by the Geological Survey and is summarized below:

Season	Mean Flow	(CFS)	Standard Deviation	No. of Observations
Winter	169		331	12
Spring	330	- **	773	13
Summer	12	•	8	.15
Fall	16		15	16
· · · · · · · · · · · · · · · · · · ·		•	•	

(1) Local Climatological Data, St. Louis, Missouri, U.S. Department of Commerce, 1970

Ground-Water Reservoirs

Wells drilled into bedrock aquifers in the Joachim Creek Water shed encounter confined or artesian ground water. In general, ground water movement is easterly toward the Mississippi River. Yields of wells varies, depending on what rock units are penetrated. Wells finished in St. Peter Sandstone through Lower Gasconade Dolomite had yields of more than 100 gallons per minute while wells finished in Cambrian age sediments but open to Ordovician age sediments had yields up to as much as 500 gallons per minute. Wells drilled in any of these areas could expect to encounter water with acceptable solids (less than 500 parts per million) in or above the aquifer indicated. Ground water in the Joachim Creek Water shed becomes more saline in a down dip in a northeasterly direction. ⁽¹⁾

Geology

The underlying earth structures are composed of younger rock than that of the south western portion of the County. The 240-260 million year old Mississippian system of the far northeastern portion of the County gradually ages to the 440-470 million years old Cambrian system of the southwestern portion of the County. This difference in age partly explains the difference in topography. The older Cambrian system has been exposed to erosion for 200 million more years than the younger Mississippian system, resulting in a more rolling topography. The younger rock structure of the northeastern section has resulted in a more rugged topography.

The southwestern corner of the County near the Big River is primarily dolomite (magnesium limestone), with sandstone and chert (angular firagments of quartz) present in various quantities depending on the location. This dolomite and chert grades northeast toward St. Louis into dolomite with sandstone. A massive sandstone ridge runs across the County from Pacific southeast to Festus and Crystal City. This fine quality stone is used for glass manufacturing and building purposes. Limestone exists in the Kimnswick formation in a narrow strip across the northern part of the County and extends south along the Mississippi River. Some deposits of marble are also present in the County.

The topsoil is Tilsit Silt Loam beginning at the ridge just opposite the highway from the Operation on northward. The Operation itself is situated on fertile alluvial Union Silt Loam in the Joachim Creek bottomland. ⁽²⁾

(1) Private communication with Donald Miller, Missouri Geological Survey and Water Resources Division, November 1971

(2) Economy and Population - Meramec, Rock and Joachim Townships, Jefferson County, Missouri, Hartland Bartholomew and Associates, March 1965 Site Evaluation Chemical Operation

Seismology

The east central Missouri general area is relatively seismically active. The southeastern area of Missouri is quite active seismically and also contains a portion of the New Madrid Fault that caused the "great earthquakes" of 1811 and 1812. There were three quakes of Epicentral Intensity XII (M.M.) which took place on December 16, 1811 and January 23 and February 7, 1812, near New Madrid. During recent years, there have been two quakes recorded in the New Madrid area. In 1962 a quake measuring V (M.M.) was recorded and one with a magnitude of $4\frac{1}{2}$ was recorded in 1963. (1)

(1) Eppley, R.A., Earthquake History of the United States, Part I, No. 41-1 Revised Edition, U.S. Department of Commerce, 1965

WASTE MANAGEMENT PROGRAM CHEMICAL OPERATIONS

SNM-33, DOCKET 70-36

SOLID WASTE

Solid waste is generated, processed and disposed of in the quantities shown on the attached table. It is generated at all process steps and pieces of equipment throughout the Facility. Solid waste is collected as soon as it is generated and placed in bins or drums which are located strategically throughout the Facility. Processing consists of compacting or incineration; however, unprocessed drums may be released for disposal. Disposal refers to on-site burial and shipment for burial. It should be noted that on-site burial was stopped in November 1970 and off-site burial has been used exclusively since.

Through November 1970, 71,200 grams of uranium (approximately 4.81 curies) have had on-site burial. During 1970, 3,176 grams of uranium enriched to greater than 5% and containing 2,938 grams of U^{235} ; 28,466 grams of uranium enriched to %5 and containing 684 grams of U^{235} ; and 8,721 grams of depleted uranium containing 133 grams U^{235} (approximately 2.72 curies) all as solid waste were disposed of by shipment to burial.

<u>Waste Management Program</u> <u>Chemical Operation</u> <u>SNM-33, Docket 70-36</u>

Solid Waste Generation, Reduction & Disposal⁽¹⁾

Category	Material Type	Material Description	.Max.Wt. Per Container (1bs)	U ²³⁵ Content Per Container (gms)	No. Containers Generated Per Week	No. Containers Reduced Per Week	No. Containers Disposed Per Week
<u>Oddobol</u>			· ·			In Out	
Low Weight Low U ²³⁵	Combustibles	Paper, Rags, Gloves, etc.	200	Less than 5	20	20_ 5	5
High Weight Low U ²³⁵	Metals Ceramics	Contaminated Equipment	800	Less than 5	8	8 2	2
Low Weight High U ²³⁵ ,	Combustibles	Paper, Rags Gloves, etc.	200	Less than 100	4	4 1	1
High Weight High U ²³⁵	Metals Ceramics	Acid Insolubles Equipment Insulation, etc.	800	Less than 100	5	0 0	5 -
			Weekly Total N Weekly Total i Annual Total N Annual Total i	o. of Containers n Cubic Feet lo. of Containers n Cubic Feet	37 272 1850 13,600 1	32 8 236 59 1600 400 1,800 2950	13 96 650 4800

NOTES: (1) Containers are 55-gallon drums

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WASTE MANAGEMENT PROGRAM Chemical Operation SNM-33, Docket 70-36 Ventilation and Exhaust Air Cleaning Equipment

I. General

Ventilation and exhaust air cleaning equipment has been coded on the following forms to reduce repetitious information. The following guide lines and equipment descriptions apply to the coding used through out the forms.

II. Ventilation

1. Class A Ventilation

Fume Hoods: Minimum 100 ft./min face velocity. Used for control of fumes where modest quantities of airborne uranium are generated. Typically these hoods might handle uranium primarily in solution form.

2. Class B Ventilation

Local Exhaust: Minimum 150 Ft./min spot velocity. Spot ventilation used at locations such as sampling ports and product take-off parts where the need for air control is momentary or of low frequency and generation of airborne material is limited by equipment design.

3. Class C Ventilation

General Purpose Hoods: Minimum 150 ft./min face velocity. Used for material transfer and similar operations where generation of airborne material is limited.

4. Class D. Ventilation

Restricted Access Hoods: Minimum 150 ft/min face velocity Hoods designed for mixed use in which operations are performed that would require Class C ventilation but for which total containment is desirable during certain process steps involving active or potentially active generation of airborne contamination. Such hoods will frequently include gloveports, and will normally be closed during production operations.

5. Class E. Ventilation

Glove Boxes: Enclosed hood under negative pressure. Operations where airborne material is actively generated, or where large quantities of material are handled such that Class C or D hoods would not be adequate will be contained in glove boxes. Airlock entry ports will be provided.

Waste Management Program Chemical Operation

Fire prevention, the potential for generating explosive atmospheres, and the presence of pyrophoric materials is considered in ventilation design. Disaster control techniques such as air dilution, quenching or inert atmospheres and fire detection or automatic extinguishing systems are utilized as appropriate for such hazards.

III. Exhaust Air Cleaning

1. Type 1

Cyclone Collectors: Used to remove particulates from exhaust streams that are heavily loaded. This equipment is 70% to 90% efficient by the manufacturer.

2. Type 2

High Efficiency Particulate Air Filters: Used in the majority of cases for highest efficiency air cleaning, normally in conjunction with roughing filters to extend useful life and improve reliability. These filters have manufacturer's rated efficiencies of 99.97%.

3. Type 3

Wet Scrubbers: Used to clean heavily loaded air streams that are not suited, due to air quality or temperature, to other cleaning methods. This type of equipment is approximately 95% efficient as rated by the manufacturer.

4. Type 4

Dry Scrubbers: Used primarily for cleaning air streams containing corrosive agents that render wet scrubbing impractical. This equipment is approximately 95% efficient as rated by the manufacturer.

5. Type 5

Fabric Filters: Normally used in systems where material impinging on them can be returned to the process using reverse jet, pulsed air or other dislodging methods. These filters are approximately 90% to 95% efficient after some material buils-up has occurred. This rating was supplied by the manufacturer.

6. Туре б

Special Filters: Ceramic or metallic frit filters, usually an integral part of process equipment, may be used for special air cleaning requirements. This type filter is approximately 95% efficient as rated by the manufacturer.

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Waste Management Program Chemical Operation

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IV. Utilization Factors

· Emission values were obtained based on the following plant use factors for 1970.

<u>Plant Area</u>	<u>Use Factor (days per year)</u>
Oxide Plant	300
Pellet Plant	320
Red Room	240
Green Room	260
Item Plant	290
Laboratory	330

Notes to Air Effluent System SNM-33 Docket 70-36

<u>Note A -</u>

Average effluent concentrations will be reduced to levels as far below the values specified in 10 CFR Part 20 as is practicable but in no case will they exceed $4.0 \ge 10^{-12} \mu c/cc$. Where no specific modifications are indicated to achieve the reduction, improvements in filter servicing procedures are implied.

Note B-

The emission value given is based on the maximum average effluent concentration of $4.0 \ge 10^{-12}$ //c/cc for the purpose of indicating the maximum emission. The actual emission may be significiantly less depending on the actual concentration.



LEGEND 1. "SUBSTRATE OXIDATION REDUCTION 2. UTILITY HOOD 3. BLENDING& WEIGHING C2-3 4. GREEN BLEND HOOD LICENSE: SNM-33 DOCKET: 70 -36 GULF DNITED NUCLEAR FUELS CORP HEMITITE MISSOURI CHEM OPS RECYCLE ROOM AIR STREAMS DATE. 3-24-71 • • •

GULF UNITED NUCLEAR FUELS CORPORATION

Air Effluent System for License: SNM-33 Docket 70-36

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AIR INTAKE SOURCE ITE4 AND OPERATION WO. OR FUNCTION Substrate oxidation reduction. Oxidation reduction of sub- strate. AIR CL. YENT AIR CL. CLASS TYPE	PRÈLIM. FINAL CLEANING CLEANING None	AIR FLOW. cfm BLOWER	СОНС. µC/ccx10-12	EMISSION SA µC'yr Po	AIR AIPLE V OINT C	VENT	AIR CL.	PRELIN.	FUIURI	AIR				AIR		
I TEMAND OPERATION OR FUNCTIONVENTAIR CL.NO.OR FUNCTIONCLASSTYPE1Substrate oxidation reduction. Oxidation strate.C2	PRÈLIM. FINAL CLEANING CLEANING None -	FLOW. cfm BLOWER	COHC. µC/ccx10-12	EMISSION SA µc'yr Po	APLE .	VENT	AIR CL.	PRELIN.	FINE	ALF.				AIN		
Substrate oxidation 1 reduction. Oxidation C 2 reduction of sub- strate.	None -			}. <u> </u>		<u> </u>	IYPE	CLEANING	CLEANING	cfm	SLOWER	μC/ccx10-12	EMISSION. µCyr	SAUPLE POINT	COMPLETION PERIOD	NOTE
	С. Нера	440 Common	Avg. 3.3	at disc	stack							3.3	19	At stack discharge	e /	
2 Utility hood. General purpose. C 2	Felt filters Filter	system	Max. 3.8									11				
Blending and weighing 3 hood CZ-3. Blend & C 2 weigh substrate.	None Hepa filter	300 Single system	Avg. 2.5 Max. 11	• 9.6		<		Same		•	>	2.5	9.6			
Green blend hood (1E) 4 Blending & drying substrate items.	None Hepa filter	60 Single system	Est. Avg. 4.0 Max 8.3	6.4						· ·		Note A	3.1 Note B		•	

Area or Location Co-Recycle Room



I. ZNS BLENDERS 2. UTILITY HOOD 3. AGGLOMERATION OR TRANSFER HOOD 4 AGGLOMERATION OR TRANSFER HOOD DRYER 5. DENISION PRESS HOOD 6 LANDIS GRINDER 7. GRINDER #1 B COOLANT CLEANING HOOD #1 9 GRINDER #Z. 10. CODLANT CLEANING HOOD #2 11. PRESS #1 EXHAUST 12. PRESS *2 EXHAVST B. PRESS FINES COLLECTOR 14. PRESS FINES COLLECTOR HOOD IS CENTRAL VACUUM SUSTEM (PRESS FINES) IL CENTERL PACUUM SUSTEM COLLECTION HOOD 17. ZNS HOOD (NON-U) 18. P-K BLENDER PARTS CLEAN - HP HOOD 19. AGGLOMERATION HOOD #1 20 AGGLOMERATION NOOD #2 ZI. GRANULATOR HOOD 22, HOL DRYER EXHAUST

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LICENSE: SNM	33
DOCKET 70-3	6
QULF UNITED	NUCLEAR.
FUELS	CORP.
HEMATITE	MISSOURI
TITLE-CHEM. Q	R. PELLET
AIR STREA	MS
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Ē	773		<u></u>			PI	RESENT								FUTUR	E	* •			1		· · · · · · · · · · · · · · · · · · ·
1	ТЕН	AIR INTAKE SOURCE	VENT .:	AIR CL.	PRÉLIH.	FINAL	- AIR - FLOW, -	BLOWER"	CONC.	EHISSION	AIR	YENT CLASS	AIR CL. TYPE-	PRELIN. CLEANING	FINAL	AIR FLOV.	BLOWER	CONC. 11C/ ccx 10-12	EMISSION. HC yr	AIR SAMPLE POINT.	COMPLETION PERIOD	KOTE
	KO.	OR FUNCTION INS blenders. Negative pressure transfer system.	None	.2.6.5	filter	Felt	-50	Single	Est. Avg. 0.5 Est. Max. 1.0	0.64	At stack discharge							-1:0 1	0.64	At stack discharge		
	2	Utility hood. General	C	2	None	Hepa filter																
	3.2.2	Agglomeration or transfer hood: Ag- glomeration of UO2 & general purpose	Đ	2	None	Hepa filter	1760	Common system	Not sampled not currently in use	1.0									<1.0			
1994	14	Agglomeration or transfer hood dryer. Dry UO2		None	None	None																
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	5.	Denison press hood. Dust pick-up for platen & shuttle box	C H		None	Hepa filter Hepa	-525 	Single	Not sample not currently	-1.07		4		Same					<1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0			
1.2. M. 1. M. 1	7	haust over grinder. Grinder #1. Exhaust	D.	2	Felt	filter Hepa filter		system										0.4	3.36			
		Coolant cleaning hood #1Hydroclone and filter.	d	2	None	Hepa filter	650	syste	1 Avg 0.4 Max 1.3	-3:3												
	9	Grinder #2= Exhaust- over grinder	D	2	Felt filter	Hepa filter	-650	Commu	n Avg. 1.7 n Max. 4.8	14								1.7	14			
	10	filter.	C	2	None	Hepa filter																
	n 	up for platen & shuttle box. Press #2: Dust pick-	B	· 2	Felt filter	Hepa filter	440	c Commo syste	n Avg. 1.0 m Max. 1.4	5.6									5.6			
	12 13	up for platen & shuttle box.	B or. Not	2 ne 2&5	Felt filter	Hepa filter	.60-	Low:V	ol Est Avg	. 0.5	4							-0.7	-0.5	t V		

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Area or Location Co-Pellet Plant

ITEN MO. Pres 14 hood 1ect Cent (pre 15 tive	AND OPERATION OR FUNCTION d. Hood for col- tion system.	VENT A CLASS	UR CL PI TYPE - CL	RFL IM	PR	RESENT		· · · · · · · · · · · · · · · · · · ·							-	· .					
11BN 14 hood 1ect Cent (pre	AND OPERATION OR FUNCTION as fines collector d. Hood for col-	VENT A	NIR CL. P	RFLIN		AIR				AIR	.~		0071 114	FUTUR	AIR		CONC	EMISSION.	AIR	CONPLETION	
Pres 14 hood 1ect Cent (pre	ss fines collector d. Hood for col-	1.45		EANING	FINAL CLEANING	FLOW, Cfm	BLOWER	COHC. (LC/ccx10-12)	μC'yr	SAMPLE POINT	CLASS	TYPE	CLEANING	CLEANING	cfm .	BLOWER	μc/ccx10-12	μCyr	POINT At stack	PERIOD	NO.
Cent (pre		D	2 N(onë	•Hepa filter	1100	Single system-	Avg. 6.8 Max: 16	• •96	At stack discharge			· · · · · · ·			· · ·	Nofe A -	57 Note B	discharg	∎ 	
for	tral vacuum system ress fines) Nega- e. pressure system collection of ss fines:	None	265 F f	elt ilter	Felt filter	65	Low vol high vac system	Est. Avg. 2.0 Est. Max: 4.0	0.30								8:8 11 11	5.7			
16 coll pres	ntral vacuum system llection hood House ss fines collection stem		2	None?																	
17 ZNS Cont P-K 18 - cle	S hood (non-U) ntain ZNS K Blender parts ean-up hood & Clean		2 2 2	None .																	
P-K P-K 19: /17: for	glomeration hood House P-K blender r UO2 agglomeration			None		2500	Comion Bystem	Avg: 15 Max: 65	480				Same				- Node A	130 Note B			
Agg 120- #2. fot	glomeration hood House P-Kiblender T UO2 agglomeration	C	2		, Hepa filter																
21: U02 22 Fil	02 granulator. 02 dryer exhaust. ilter exhaust from 05 dryer:	None	2	None	Felt filter																
										V 									-		

Page 2 of 2

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GULF UNITED NUCLEAR RUELS CORPORATION Air Effluent System for License: SNM-33

Area or Location

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	I TEN	AIR' INTAKE SOURCE	VENT 5 CLASS	AIR CL. TYPE	PRELIM	FINAL	AIR FLOW,	BLOWER	СОНС. µC/ccx10-12_	EHISSION LC'yr	AIR SAIPLE POINT	VENT	AIR CL. TYPE	PRELIN. CLEANING	FINAL	AIR FLOW.	BLOWER.
•••• •••	1	Finished item hood Split & weigh finished samples.									At stack discharge						
	2	Substrate Item hood. Split & weigh finished samples.		None	None	Nona	1030	Common	Ave. 58	*800							· · · · ·
		Ro-tap.hood.Screen- ing samples Control lab. hood						system	Max. 85								
	ALL AND AND	store empty screens. U & N hood Prepara- tion of samples for analysia												None	Hepa	4100	Common System
		Atomic absorption preparation hood. Preparation of. samples for A.A.		None	None	None	-1350	Common system	Est Avg 2.7 Est Max 5.4	49:							
	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	analysis. Control. lab. hood. Analysis of control. samples		None	None	None	1070	Single	Avg.15 Max:31	220							
	8	Atomic absorption unit Analysis of samples	B	None	None	None	650	Sing e system	Not Interim in O	sampled tent openly	ration	B					
	9	Trash compactor Air scoop for trash compactor	B	2	None	.Hepa filter	20-	Single system	Not Interim in	sampled tent openly	ration						

Page 1 of

CO-Laboratory

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· • ‡ . AIR . CONC. EMISSION. SAMPLE CONCLETION μc/ccx10-12 μc/ yr POINT PERIOD NOTE • -. • ۰. 1 . . : · ·. • • • -·.-. · . . ۰. . . محمد المحمد ا inc) • A 220 At stack Note B discharge Notes A* 7 1 (* 1 ------1000 3 Ľ. -1 • 34. 77 ÷. ه آن سخت. ۰. . . . ·.. . . . ----••

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LEGEND I. INCINERATOR Z.CONSOLIDATION HOOD J. DRYER & EVAPORATION HOOD S. DRYER 6. MILLING HOOD_ L SWECO SCREENING HOOD B. GONTAMINATED VACUUM SYSTEM COLLECTO 9. CONTAMINATED VAC. SYSTEN COLLECTION NOOL DOCKET 70.36 GULF UNITED NUCLEAR FUELS CORP. HEMATILE -SCRAP TILE CHEM OR RECYCLE ARE AIR STREAMS DATE 3-22-71

Air Effluent System for License: SNM 33

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- G	ULF UNITEI) NUCLEAR	FUELS	CORPO	DRAT	ION
• • • • • •		Docket 7	0-36			
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					P	RESENT	· · ·						-	. FUIUR	E	
1784	AIR-INTAKE SOURCE AND OPERATION	VENT	AIR CL.	PRELIM.	- FINAL	AIR FLOW,	RI OWER 5	CONC.	EMISSION	AIR SAMPLE POINT	VENT CLASS	AIR CL. TYPE	PRELIM. CLEANING	FINAL CLEANING	CAIR FLOW. Cfm	BLOWER
HO.	OR FUNCTION Incinerator. In- cinerate low ENR, trash	CLASS	<u>ТҮРЕ</u> 2	None 1	Hepa filter	800	Single system	Avg. 1.6 Max. 14	16	At stack discharge						
2	Consolidation hood. Consolidate trash, empty oxide plant hoppers-general pur	Ċ					1								· · · · ·	
5.	pose Dryer Dry hydroclo sludge	ne B	2	None	Hépa filter	2000	Common systen	Ävg. 1.6 Max. 3.4	414				Comos			۰۰, ۱۹۹۵ ۱۹۹۹ ۱۹۹۹ - ۱۹۹۹ ۱۹۹۹ - ۱۹۹۹ ۱۹۹۹ - ۱۹۹۹ ۱۹۹۹ - ۱۹۹۹ ۱۹۹۹ - ۱۹۹۹ - ۱۹۹۹ ۱۹۹۹ - ۱۹۹۹ - ۱۹۹۹ ۱۹۹۹ - ۱۹۹۹ - ۱۹۹۹ - ۱۹۹۹ - ۱۹۹۹ - ۱۹۹۹ - ۱۹۹۹ - ۱۹۹۹ - ۱۹۹۹ - ۱۹۹۹ - ۱۹۹۹ - ۱۹۹۹ - ۱۹۹۹ - ۱۹۹۹
	Evaporation hood Evaporate low ENR Liquids:	n n		None	Hepa filter	2570	Common system	Avg. 0.5 Max. 2.4	15							
3	Milling hood. Mill		1.1.2	Felt	Hepa	850	Single									
	SWECO screening hoo Screen U-material	od: D	7	Felt , filter	Hepa filter	1500	Single	Not cur rently in use								
8	Contaminated vacuu system collector. Clean contaminated	n Nor	ie 562	Felt.	Hepa filter	- 146 	Single					174-183				
9	system collection hood.,Hood for col lection system.	Đ	2	Felt	.Hepa r filter	-1100	Single			Y						
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Page 1 of 1

Area or Location

Co-Scrap Recycle Area

CONC. HISSION. SAMPLE POINT PERI CONCLE POINT PERI /	TION IOD NOTE
CONC. HISSION. SAMPLE HC/ccx10 ⁻¹² HC/yr CONPLE POINT PERI /	ETION NOTE
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LEGEND CARBONATE MAKE-UP HOOD 2. MIXER-SETTLER PUMPING STA. 3. UTILITY GLOVE BOX 9. SULFATE HOOD 5. PERCIPITATION & FILTRATION HOOD 6. UTTLAY HOOD 7. MIXER-SETTLER HOOD 8. VERTICLE TUBE FURNACE */ 9 VERTICLE TUBE FURNACE +2 10 VERTICLE TUBE COOLER 11. BALL MILL GLOVE BOX 12 PACKAGING UO2 B. HAND DUNKER * 14, HAND DUNKER #2 15 PICKLING HOOD 16 MAGNORITE DEVER 17. BOMB SHELL UNLOADING HOOD B.BOMB MAKE-UP HOOD TS. BOMB REDUCTION FURNACE D.CYLINDER WASH HOOD 21 MILLING GLOVE BOX 2. UF - UFA CONVERSION HOOD 23, UT UE CONVERSION HOOD #2 24 UTILITY HOOD Z. DRYERS 1, 2,3 & 4 ZL MUFFLER BOX COOLER #182 TT. MILLING HOOD (PRODUCTION) 28, MILLING HOOD (UTILITY) A. UD PLENDM 30 MUFFLE BOX FURNALES 182 31. MUFFLE BOX FUENACES *3, 485 32. MUFFLE BOX FUENACES 6,7,8,9,108/1 LICENSE: SNM-33 DOCKET 70-36 GUZE UNITED NUCLER FUELS COLP. HEMATITE MISS MISSOURI CHEM. OPS. RED. ROOM AIR STREAMS ATE 3.22-71

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ir I	Effluent System for Li	cense	SNM-	.33	· · · · · · · · · · · · · · · · · · ·		1		Docke	et 70-36	,	•	•	•1	· · · · · ·		Area o	or Locati	on Co-	Red Room	
<u>.</u>		·		· · · · · · · · · · · · · · · · · · ·	<u>Р</u>	RESENT		····			<u> </u>			FUTUR	ξĒ.		1.				
I TEM NO.	AIR INTAKE SOURCE AND OPERATION OR FUNCTION	VERT	AIR CL. TYPE	PRELIM. CLEANING	FINAL	AIR FLOW. Cfm	IBLOWER	CONC. µC/ccx10 ⁻¹²	EMI SSION ALC' yr	- AIR SAIPLE POINT	VENT	AIR CL. TYPE	PRELIM. CLEANING	FINAL	A1F FLO#. cf=	BLOWER	conc. μενετ 10-12	эчission. µC'yr	AIR S&4PLE POINT	COMPLETION PERIOD	NO
1	Carbonate make-up hood. Prepare feed and work-up carbonate for feed soln., used in mixer settler.					1000															· · ·
2	Mixer-'settler pumping station. Filtering & pumping feed soln., to overhead tanks	- C .	2	None	Hepa filter	1200	syster	Avg. 5.1 Max. 6.2 ~ (est)		discharg			- Same _			►	³ 3.1	37	discharg	2	
3	Utility Glove box 240-2-32. Unload ADU from filtering funnels.	E	2	None	Hepa filter	45	Single system	Avg = 5.2 Max. 10	273								5.2	2.3			
4	Sulfate hood 240-2-25. Wash U- metal, prepare feed solution.	C	None	None	None	1500	Single system	Avg: 23 Max 46	340-								1000 - 10000 - 10000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 -				
5.5	Precipitation'& fil- tration hood 240-2-29 Precipitate and filte ADU.	Ċ	Nône	None	None ,	-2300					, rc		None	New	3800	Note C	Note A	150 Note B		· · · · · · · · · · · · · · · · · · ·	
6	Utility hood 240-2-29 Dissolution of scrap.	C	None	Felt filter	None.	23005	system	Avg. 3.1 Max, 6.2													
7	Mixer-settler hood 240-2-30. Mixer- settler extraction.	E	2	None	Hepa filter	.151	Single system:	Avg., 0.7 Max. 1.4	1.0		4		.Same				0.7	-1.0			
8	Vertical tube furnace	A	None	Nońe	None	580.	Compon~	Аув. 3.7	-21		A	3	None	New	-580	Note C	Note A				
10	#2. Drying UF4. Vertical tube cooler. Cooling vertical cooling tubes.						system	Max. 5.0						scrubber				Note B			3
11	Ball mill glove box 240-2-28. Ball mill ash and other solids	E	2	• None S	Hepa. filter	135	Sinyle system	Avg. 1.4 Max. 2.5	1.9		4		- Same			P	1.4	1.9			!
	dissolution.																	:			



LEGEND I TRAP CLEAN-OUT HOOD 2. POT-LID CLEAN-UP HOOD 3 POT-LID RESIDUE BOIL-DOWN HOOD LICENSE: SNM .: 33 DOCKET: 70-36 GULF_UNITED NUCCEAR HEMITITE MISSOURI CHEM, OPT POT CLEAN-OP. ROOM AIR STREAMS____ DATE 3-24-71

GULF UNITED NUCLEAR FUELS CORPORATION

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ITEN NO.	AIR INTAKE SOURCE AND OPERATION OR FUNCTION	VENT CLASS	AIR CL. TYPE	PRELIM. CLEANING	FINAL	AIR FLOW, cfm	BLOWER	CONC. µC/ccx10 ⁻¹²	EMISSION µC'yr	- AIR . SAMPLE . POINT	VENT CLASS	AIR CL. TYPE	PRELIM. CLEANING	FINAL CLEANING	AIP FLOW. cfm	SLOWER -	СОНС. µC/ ccx10-12	ehission. µсуг	AIR SAMPLE POINT	COMPLETION	
1	Trap clean-out hood. Empty and clean filters for pots.	•	-			••									• • •			•		/	
2	Pot-lid cleanup hood Clean pot-lids	C	None	None	None.	850,	Common system	Avg. 13 Max. 23	140 -	At stack discharge											
3	Pot-1id residue boil down hood. Boil-down residues.	C	None.	None	None	1600	Single system	Avg. 0.8 Max. 1.1	16										·		
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LEGEND

1. SAMPLE HOOD 2. LOT BLENDING 3. FIRED WEIGHING 4. PRODUCT COLLECTION HOOD 5. FLUID BED REACTOR FILTER CLEANING HOOD 6. FLUID BED CLEAN UP BOTTOM 7. FLUID BED CLEAN UP TOP 8, FINISH SW SCREENING HOOD 9. FINISHED SCREENING HOOD 10. ALTERING HOOD (DECLADDING) 11. FINISHED WASH HOOD 11. FINISHED WASH HOOD 12 FINISHED WASH HOOD 13 GREEN WEIGHING HOOD 14 SUBSTRATE PREPARATION (2-A) 15 SUBSTRATE PREPARATION (2-A) 16. BLENDING & DRYING HOOD (1-A) 17. BLENDING & DRYING HOOD (1-A) 18. BLENDING & DRYING HOOD (1-C) 19. BLENDING & DRYING HOOD (1-D) 20. EDED SUBSTRATE (2-A) 20. FIRED SUBSTRATE (3-A) 21. FIRED SUBSTRATE (3-B) 22. SUBSTRATE WASHING HOOD (4-A) 23. SUBSTRATE WASHING HOOD (4-B) 24. FINISH BLENDING HOOD 26 FINISH BLENDING HOOD 27 FLUID BED EXHAUST 29 POT HOOD 30 POT VIBRATOR EXHAUST 31. WEIGHING HOOD

LICENSE: SNM.33 DOCKET : 70-36 GULF UNITES NULLEAR HEMITITE MISSOURI CHEM OPS TITEM PLANE AIR STREAMS DATE 3-24-71

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GULF UNITED NUCLEAR FUELS CORPORATION

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Air Effluent System for License: SNM-33

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Docket 70-36

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I TEN No.	AIR INTAKE SOURCE AND OPERATION OR FUNCTION	VENT CLASS	AIR CL. TYPE	PRELIH. CLEANING	FINAL	AIR FLOW, cfm	BLOWER	сонс. µс/ссх10-12	EHIS910H JLC'yr	AIR SAIPLE POINT	VENT CLASS	AIR CL. TYPE	PRELIM. CLEANING	FINAL CLEANING	AIR FLOW.	BLOWER ·	00HC. μC/ccx10-12	EMISSION. µClyr	AIR SAMPLE POINT	COMPLETION	NOTE
1	Sampling hood C3-7. Sampling substrate.	С	2	None	Hepa filter	170	Single system	Avg. 7.0 Max. 12	14	At stack discharg	e	· · ·		•••••	· ·						
2	Lot blending C3-9. Substrate lot blending	.c	2	None	Hepa filter	-190	Single system	Avg. 5.0 Max. 19	-11				•	•••	a.			NU			
3	Fired weighing. Weigh- ing fired substrate.	C	2	None	Hepa filter	250	Single system	Avg. 3.4 Max. 5.5	10					•	• • •	•••		••		•	-
4	Product collection hood. Collection of washed product.	E	-	None	Hepa .filter				1	1					•		1	•			
5:	Fluid bed reactor filter cleaning hood. Clean fluid bed re- actor filters and components.	Ċ	2	Felt filter	Hepa. filter	280	Single system	Avg. 7.7 Max. 20	20	At stack discharg	e								4 7 A		
6	Fluid bed clean-up bottom. Clean fluid bed reactors.	D	2	Felt filter	Hepa filter	330	Common	Aug. 10	79										• •		
7	Fluid bed clean-up top. Clean fluid bed reactors.	B	2	Felt filter	Hepa filter		system	Max. 220	. 14					• • •		· · ·		e	-		
8	Finish SW screening hood C3-15 (pots). Screen finished product.	Ċ	2	None	Hepa filter	24.0	0		10								сей.			•	
9	Finish screening hood C3-15 (F.B.R.). Screen finished product.	с	2	None	Hepa filter	340	system	Avg. 4.1 Max. 4.7	. 16				ı	· · ·		· · ·	. 4				
10	Filtering hood (de clading). Cleaning fluid bed reactor.	c	None	None	None	250	Single system	Avg. 13 Max. 49	41				••		•		1 		 *.		
11	Finish wash hood. Wash and dry finished product	С	None	None	None	885	Single system.	Avg. 3.4 Max. 4.3	39					. • .	•		 a (
Ì2	Finish wash hood. Wash and dry finished product.	С	None	None	None	840	Single system	Avg. 4.0 Max. 5.2	43			· .		•	-					- 1	

Area or Location Co-Item Plant

Air Effluent System for License: SNM-33

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Î TB	AIR INTAKE SOURCE AND OPERATION OR FUNCTION	YENT CLASS	AIR CL. TYPE	PRELÍM. CLEAÑING	FINAL CLEANING	AIR FLOW, cfm	BLOWER	СОНС. µС/ссх10-12	· EHISSION µC'yr	AIR SAMPLE POINT	VENT	AIR CL. TYPE	PRELIM. CLEANING	FINAL CLEANING	AIR FLOW. cfm	BLOWER	CONC. 12/ CCX 10-12	emission. µCiyr	AIR SAMPLE POINT	COMPLETION	NOTE
13	Green weighing hood C3-8. Weigh green boats	С.	2	None	Hepa filter	137	Single system	Avg. 14 Max. 28	22	At stac discharg	c je			•	·		15		•	/	
· 14	Substrate preparation C3-14 (2-A). "Green" substrate preparation.	E	2	None	Hepa filter	- 85	Single system	Avg26 Max. 170			- - - -		•				2012 2012 2012	N			
15	Substrate preparation C3-14 (2-B). "Green" substrate preparation	E	2	None	Hepa filter	69	Single system	Avg. 3.4 Max. 13	.2.8						: : ::::::::::::::::::::::::::::::::::				•		· .
.16	Blending and drying hood C3-13 (1-A). Blending and drying substrate item	E	2	None	Hepā filter																
.17	Blending and drying hood C3-13 (1-B).	E		None	Hepa filter		common	Avg. 5.0 Max. 10													
18	Blending and drying hood C3-13 (1-C).	E		None.	Hepa: .filter	-420	Common	Avg. 7.7	38									- 2			•
. 19	Blending and drying hood C3-13 (1-D).	E	2	None	Hepa filter		system	Max. 16										•			· · · ·
20	(3-A). Polishing &	E.	2.1	None	Hepa filter	78	Common	. Avg. 5.1	4.7												
21	(3-B). Polishing & sizing.	E	2	None	Hepa filter		system	max. 10				-									
. 22	Substrate washing hood C-3-3 (4-A). Washing & drying substrate.	C	2	None	Hepa filter	1150	Single :ytetm	Avg. 1.1 Max. 1.2	-15							÷	12 12 13 14 14 14 14 14 14 14 14 14 14 14 14 14				•
23	Substrate washing hood C3-3. (4-B). Washing & drying substrate.	C	2	None	Hepa filter	1150	Single system	Avg. 0.1 Max. 0.2	1.5							•••					•
						A															

Area or Location Co-Item Plant

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Air Effluent System for License: SNM-33;

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Docket 70-36

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24 Picich blending nod. 25 Picich blending nod. 27 Picich blending nod. 28 Picich blending nod. 29 Picich blending nod. 20 Picich blending no	I TEH	AIR INTAKE SOURCE AND OPERATION OR FUNCTION	VENT CLASS	AIR CL. TYPE	PREL'IM. CLEAN'ING	FINAL CLEANING	AIR FLOW, cfm	BLOWER "	СОНС. µС/ссх10-12	EMISSION JLC'yr	AIR SAMPLE POINT	VENT CLASS	AIR CL. TYPE	PRELIM. CLEANING	FINAL CLEANING	AIR FLOW. cfm	BLOWER	CONC. µC/ ccx10-12	enission. µc/yr	AIR SAMPLE POINT	COMPLETION PERIOD	NOTE
25 Flaich blanding and ampling. Glove Box Air Locks No Blover System 26 Flaich blanding and ampling. Glove Box Air Locks No Blover System 27 Flaich blanding and ampling. Box Air Locks No Blover System 27 Flaich blanding and ampling. Box Air Locks No Blover System 27 Flaich blanding food. Box Air Locks No Blover System 27 Flaich blanding food. Box Air Locks No Blover System 27 Flaich blanding food. Box Air Locks No Blover System 28 Food back schneigt. Box Air Locks No Blover System 29 Food back schneigt. Box Air Locks None 20 Food back schneigt. Box Air Locks None 21 Food back schneigt. Box Air Locks Box Blover System 29 Food back schneigt. Box Air Locks Box Blover System Box Blover System 21 Food back schneigt. Box Blover System Box Blover System Box Blover System 20 Food back schneigt. Box Blover System Box Blover System Box Blover System 20	24	Finish blending hood. Finish blending and sampling.					•	-		- 5		· · ·						•			,	
6 Finish blending hood, sampling and	5.	Finish blending hood. Finish blending and sampling.		G1	ove Box A	ir Locks	No Blc	wer Syst	tem	· · · · · · · · · · · · · · · · · · ·	_	· · 1		• • • • • •			• • •					
Pluid: bed exhault: 1 None None 1800 Single Avg. 95 2100 Attack Attack Pot "buidt bed exhault": 1 None None 1800 Single Avg. 95 2100 Attack Historyce Pot "buidt Sort 1 None None Single Avg. 95 2100 Attack Historyce Bhaidf Pot bask 1 None None Single Avg. 10 7400 Historyce Shaidf Pot bask 1 None None Single Avg. 10 7400 Shaidf None None None 1200 Single Avg. 10 275 Bot Modd Maxie 1200 Single Avg. 10 275 24 Bot More None None None 1200 Single Avg. 10 275 24 Bot More None None None Single Avg. 10 276 24 24 24 24 24	6	Finish blending hood. Finish blending and sampling														in Stat			-			
Rot Durn-off ez B None None None Single Avg. 120 7400 sexhaust Oct.hoëd. Dischärge. O None None None Single Avg. 160 7400 19 heat and exhaust pot O None None None None 1200 Single Avg. 160 270 10 hoat and exhaust pot O None None None 1200 Single Avg. 16 270 11 weighing hood. Weigh finished product. C - None Single Avg. 10.8 - 12 Wacum source. Pro None Single Avg. 10.8 - - 12 Vacuum source. Pro None Single Avg. 10.4 - - 12 Vacuum source. Pro None Single - - - - 13 Vacuum source. Pro None Single Avg. 10.4 - - - 14 Vacuum source. Pro None Single - - - - -	27, 	Fluid bed exhaust. Fluid bed of gas exhaust.	В	None	None	None	1830	Single system	Avg. 95 Max. 21300	'21 00	t stack lischarge							N N				
Pot hood. Discharge C None None 1200 Single Avg. 19 270 fürnaces - - - - - - - - Pot volbrator exhaust -		Pot. "burn=off" ex- haust. Pot of gas exhaust.	В	None	None	None	5170	Single system	Avg. 120 Max. 180-	7400									at a t			•
Pot. vibrator exhaust A None None Auo Single 19. 90 discharge air A None None Auo Single 19. 90 11 Weighing hood. Weigh finished product. C 2 None Hepa filter 390 Single Avg. 0.8 2 Vacuum source. Pro- vidés vacuum for finished substrate. None 6 None Sint. 30	9	Pot hood. Discharge heat and exhaust pot furnaces.	C, V	None	None	None	1200	Single system	Avg. 19 Max. 35	270		1							201			
1 Weighing hood. Weigh finished product. C 2 None Figle Filter Avg. 0.8 390. svetem Vacuum source. Pro- vidės vacuum for finished substrate None 6 None Sint. metal -30	0;	Pot vibrator exhausts "Pick-up" for vibrator discharge air	A	None	None	None	400	Single system	Est. Avg. 19 Est: Max. 38	90												•
Vacuum source. Pro- vidės vacuum for finished substrate. None 6 None Sint. 30 metal	31	Weighing hood. Weigh finished product.	C	-2	None	Hepa filter	390	Single svstem	Avg. 0.8 Max. 1.0	4.0									1			
	32	Vacuum source. Pro- vides vacuum for finished substrate.	None	6	None	Sint: metal	- 30										1					
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Area or Location Co-Item Plant

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Air Effluent System for License: SM-33

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	I TEN KO.	AIR INTAKE SOURCE	VENT AIR-C CLASS TYPE	L PRELIN: CLEANING	FINAL	AIR FLOW, cfm -	BLOWER	Сонс. µс/сс×10-12	ENISSION JLC'yr	AIR SAMPLE POINT	VENT CLASS	AIR CL. TYPE	PRELIM. CLEANING	FINAL CLEANING	AIR FLOW. cfm	BLOWER	-1 -1 -1 -12 μC/ cex 10-12	EHISSION. µClyr	AIR SAMPLE POINT	COMPLETION	NOTE
	12	Packaging UO2 240-2-7 Brinh, sample and package UO2.	B	Felt filter	Hepa Filter	500	Single system	Avg. 1.0 Max. 1.3	4.9	At stack discharge			Same				1.0	4.9	At stack discharg	e /	
	13	Hand dunker #1 240-2-24; Hand, ex- traction and sissolu- tion of U.	C. None	None	None	2300	Single system	Ayg.: 6.1 Max. 16.0-		1	Ç	3	None	New scrubber	2300	Note C	Note A	90 Note B			
Land Land	14	Hand dunker #2 240-2-26. Hand ex- traction system	1	Feit	hepa filter	1280-	Single system,	Avg : 914 Max - 42	120		A		Same				Note A	-50 Note B			
	13.13	Pickling hood 240-2-17 Breaking and pickling U-metal purging U-metal bombs		None	Hepa ffltet		Single Single	Avg 13 Max, 37									Note A	Note B			
	16	Magnorite dryer (non-U) Drying MGO bomb components	None Nor	e None	None.																
1. 43. 44. 24. 24. 24. 24. 24. 24. 24. 24. 24	17	Bomb shell unloading hood 240-2-23. Unload bomb shells dump slag into 15-gal, pails		Felt	Hepa- filter						A. A. A.		Nonessi								
	18	Bomb make-up hood 240-2-22, Bomb Make- up	E 2	Felt	Hepa -filter			Avg. 2.5 Max 4.3						scrubbet				Note: B			
	19	Bomb reduction furnace 240-2-15. Fire U-metal bombs:	À None	None	None						A										
	20	Cylinder wash hood 240-2-31. Wash cylinders and clean UF6-UF4 conversion	ĊŇo	ie None	None	14 Q	Single system	Avg. 23. Max. 35	99 .		(
	21	parts. Miling glove box 240-2-34. Mill UF4	E 2	None																2000 1000 1000 1000 1000	
		tube reactors			See ner	t page	for Ite	ns 21 . 22	23.				See next	page : for	Items	21 , 22	ind 23.				

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Area or Location Co-Red Room •. • · • · · .

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Air Effluent System for License: SNM-33

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	I TEH Ko.	AIR INTAKE SOURCE AND OPERATION OR FUNCTION	VENT. CLASS	AIR CL. TYPE	PRELIH, CLEANING	FINAL CLEANING	AIR FLOW, cfm	BLOWER *	сонс. µс/ссх10 ⁻¹²	EMISSION µC'yr	AIR SAMPLE POINT	VENT	AIR CL. TYPE	PRELIH. CLEANING	FINAL CLEANING	AIR FLOW, cfm	BLOWER	1 μC/ccx10-12	ehission. µci yr	AIR SAMPLE POINT	COMPLETION PERIOD	NOTE
		UF6-UF4 conversion hood #1 240-2-21.				· · · · · · · · · · · · · · · · · · ·	1				At stack discharge						-	and the second se		At stack discharge	1.	
	.22	UF6-UF4 conversion, dry UF4, load reactors.	D	2	Felt filter	Hepa	1200	Common	Avg. 3;901	46	•	4		— Same —		· ·		3.9	46			
2	23	UF6-UF4 conversion hood #2 240-2-21 UF6-UF4 conversion, dry UF4 load reactors	D	2	Felt	Tiller		system	Max. 14													
うないたいです	24	Utility hood 240-2-44. Feed make up & general purpose.	N. B.	2	None	Hepa	800	Single	Avg. 4.3sh Max. 11	34				- Same -				24.3-	34			
FOR THE OF	25	Dryers 1, 2, 3 & 4 240-2-27, Dry ADU:	None	None	None	None																
	26	Muffle box cooler: 1 & 2, 240-2-20 Cool muffle boxes		None	None	None	1070	Comon	Avg- 614 Max. 110	640 V												
6.13.82.4	27	Milling hood 240-2-13 Mill UO ₂₅			None	Hepa filter						E										
140 A 100 A 100	729 [°]	Mill VO2	B	None	None	filter None						B	.3	None	scrubben	2900	Note. C	Note A	110 Note B			
845 C 10 1 10 10 10 10 10 10 10 10 10 10 10 1	30	Muffle box furnaces #1 & 2. Pyrohydrolize UF4 to-UF6	A	None	None	None	500	Single system	Avg. 390 Max. 1900	1900												
	- 3 1	Muffle box furnaces #3, 4 & 5. Pyro hydrolize UF ₄ to UF ₆ .	A+	None	None	None:	500	Single system	Avg: 440 Max. 1400	2200		Ā			6			4.0			Dec. 1972	· · · · · · · · · · · · · · · · · · ·
. Ju	-32	Muffle box furnaces #6, 7, 8, 9, 10 & 11. Pyrohydrolize UF4 to UF6.	A JF	None	None :	Noñe	825	Single	-Avg. 750 Max. 1800	6100.												
																1999 1999 1997 1997 1997 1997						

Area or Location Co-Red Room



LEGEND: I. SAMPLE & WEIGH HOOD 2.DISSOLUTION HOOD 3 VIBERTORY FEED HOOD A. FILTER HOLD TANKS SEVRNACE 6. FURNACE T. REACTOR BOX GOOLER 8. PRECIPITATION HOAD 9 DEYEE ID. DEVER 12 UNLOADING & MILLING HODD LICENSE: SNM - 33 DOCKET: 70.36 GULF UNITED NUCLEAR - RIELS ORP. HEMATITE MISSOURI TITLE - CHEM. OPS GREEN AIR STREAMS DATE - 3-22-71

GULF UNITED NUCLEAR FUELS CORPORATION

Air Effluent System for License: SNM-33

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Docket 70-36

	ALD INTAKE CAMPAR	r		·	r 1	410	· · ·	T	·				<u> </u>	ruiur	(E	·		·			
I TE4 No.	AIR INTAKE SOURCE AND OPERATION OR FUNCTION	VENT CLASS	AIR CL. TYPE	PRELIM. CLEANING	FINAL CLEANING	.AIR FLOW. cfm	BLOWER	сонс. µc/ccx10-12	EMISSION µC·yr	AIR SAMPLE POINT	VENT CLASS	AIR CL. TYPE	PRELIM. CLEANING	FINAL CLEANING	AIR FLOW. cfm	BLOWER	CONG:	EMISSION. µC yr	AIR SAMPLE POINT	COMPLETION PERIOD	NOTE
1	Sample & weigh hood 240-3-20. Weigh & sample UO2-cut up high enr., filters.	с	2	None	Hepa filter	300	Single system	Est. Avg. 3.8 Max. 7.7	25	At stack discharge			2929, wayer			•••				1	
2	Dissolution hood 240-3-16. Recovery of cyl. heel wash Dissolution of low enr., scrap.	A	3			· · · · · · · · · · · · · · · · · · ·	Common	Avg. 21					•		-						•
3	Vibration feed hood 240-3-18. Feed scrap to dissolution tank.	D	: 2 :	None	SCrubbei		9, BCem	Max. 47	750	10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			· · · ·		•••			-	140 m		
4	Filter hold tanks 240-3-4 & 5. Store ADD filtrate	A	None	None	None	800	Single system	Avg. 1.4 Max. 2.6	12												•
5	Furnace 240-3-12. UO2 oxidation-re- duction of ADU & incineration of trash		•				Gommon	Avg. 520													
9	Furnace 240-3-13. U02 Oxidation re- duction-pyrohy drolysis of ADU and incineration of trash	A	None	None OL.	None	62350 J	system.	Max. 780	13000												
7	Reactor box cooler 240-3-13. Cool reactors.	None	None	None	None	4500	Single system	Est. Avg. 0.4 Est. Max. 0,7	. 34							· · · · · · · · · · · · · · · · · · ·			•		
8	Precipitation hood 240-3-17. Precipitate ADU and filter.	A	None -	None	None	2700	Common	Est. Avg.	50			•									•
9	Dryer 240-3-14. Dry ADU.	None	None					Max. 1.7				-	•	•			, , , , , , , , , , , , , , , , , , ,		· •		- -
LO	Dryer 240-3-15. Dry ADU.	None	None	: 					• 					·		•				· ·	•
ĭ 1	Blend hood 240-3-22. Blend UO ₂ .	C	2	None	Hepa filter								. •								. : i
	and the second sec				<u>.</u>		L			V X									L		!

Area or Location CO-Green Room

GULF UNITED NUCLEAR FUELS CORPORATION

Docket .70-36

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Ĩ٦	6. C. S.					PR	ESENT				AIR					AIR		CONC	EMISSION.	AIR SAMPLE	COMPLETION		
		AIR INTAKE SOURCE		P. CI	POFT IN	FINAL	FLOW.		CONC.	DHISSION	SAPLE	YENT 21 ASS	AIR CL.	PRELIM.	FINAL	FLOW.	BLONER	μc/ccx10-12	μĆlýr	POINT	PERIOD	NOTE	
	TTB	AND OPERATION CL	LASS	YPE 2	LEANING	CLEANING	cfm	BLOWER	μC/ccx10 ⁻¹² -	μι·yr	PUINI	ULAGO											
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						citize i ma			No. 2001.400 - 17			· · · · › (•			ing a title to print .	14.Y							
		Unloading and milling			1	Hepa .		Single	Est. avg.	140	At stack										-		
5. 	12	hood 240-3-10. Load	C .	2	None	filter	2350	system	Max. 5.3														
		mill UO2					3 . La	an anna an t	ور به مرون این مرون می مرد می از مرد این مرد می مرد این مرد مرد می مرد می مرد می مرد می مرد می مرد می می مرد م مرد می مرد می مرد می مرد می می می می می می می می		1				ماسید و صورت و مرد اسم اسم اسم اورو اور مرد ما				and a state of the second s			· · · · · · · · · · · · · · · · · · ·	
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Area or Location -CO-Green Room

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Air Effluent System for License: SNM 33

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IT N	AIR INTAKE SOURCE AND OPERATION OR FUNCTION	VENT CLASS	AIR CL. TYPE	PRELIM.	FINAL	AIR FLOW cfm	BLOWER	Сонс." µс/ссх10-12	EHI SSION ; LC : yr	AIR SNIPLE POINT	VENT CLASS	AIR CL. Type	PRELIN. CLEANING	FINAL CLEANING «	AIP FLOW.	BLOWER	СОНС: µC/ ccx 10-12	EMISSION. HC yr	AIR SAMPLE POINT	COMPLETION PERIOD	KOTE
1	Utility hood 12-47060A. Weigh & sample UO ₂ F ₂ .	·C	.2.	Felt filter.	Hepa filter	800	Single Blower 12-4312	Avg. 4.0 Max. 8.0	38,	At stack discharge						4	4.0	38	At stack discharge	<u>/</u>	
2	Micronizer hood 12-4704. Contains milling equip.	D	2	None	Hepa filter	2000	Single Blower 12-4310	Avg. 5.0 Max. 22	120								Note A	96 Note B			
3	Filter clean-up hood 12-4075. Changing felt filters.	E	2	None	Hepa filter	207.5	Comon blower	Avg. 4.0	98									08			
4	Local hoods for filter clean up. Dust pick-up when breaking flanges	B	2	None			system 12-4711	Max. 7.0										50			
5	Utility hood 12-4706-B. Equipment clean-up.	C	2	Felt filter	Hepa filter	1600	Single								0						
	Local hoods for micro blenders 1 & 2 Dust pick-up when breaking flanges, sample ports, and equip. clean-up.																				
	Local hoods for micro blenders 3 & 4 Dust pick-up when breaking flanges, sample ports, and equip. clean-up.												Jame								
8	Local hoods for silos 1 & 2. Dust pick-up when breakin flanges, sample port and equip. clean-up.	g s	See ne:	kt page f	or Items	6, 7,*8															
	Local hoods for reactor R-3 & UO2 cooler. Dust pick- up when breaking flanges, sample port and equip. clean-up.	S								V											

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Area or Location CO-Oxide Plant

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GULF UNITED NUCLEAR FUELS CORPORATION

Air Effluent System for License: SNM 33

Docket 70-36

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I TEH KO.	AIR. INTAKE SOURCE AND OPERATION OR FUNCTION	VENT. CLASS	AIR CL. TYPE	PRELIM. CLEANING	FINAL	AIR FLOW, 4 cfm	BLOWER	CONC. μC/cc×10 ⁻¹²	"ENI S910) µC'yr	AIR SAIPLE POINT	VENT CLASS	AIR CL. TYPE	PRELIN. CLEANING	FINAL: CLEANING	AIR FLOW. cfm	BLOWER	сонс. µс! ссх 10-12	EMISSION. µC'yr	AIR SAMPLE POINT	COMPLETION PERIOD	NOTE
10	Local hoods for R-2. Dust pick-up when breaking flanges, sample.parts and equip. clean-up.						Common			At stack discharge									At stack discharge		
11	Local hoods for R-1 Dust pick-up when breaking flanges, sample parts and enuip. clean-up.	B	- 2	Felt filters	Hepa filters	7325	blower system 12-4703	Avg. 5.0 Mar. 10	520								Note A	42 Note B			
12	Product transfer to silos 1 & 2. Positive pressure system.	None	5 & 2	Felt filters	Hepa filters,	60	Low vol high vac system	Est. Avg 2.0 Est. Max. 4.0	0.28								4.0	0.28			
L. C. S	Product transfer to, micro blenders 1, 2, 3, & 4. Positive pressure system.	None	5.6.2	Felt filters	Hepa filter	3350	Low vol high: Vac system	Est. Avg 2.0 Bst. Max: 4.0	4.3				Same				4.0	4,3			
14	Reactors 1, 2, 63 UFg-UO2 conversion Dry scrubber. Off	H. T	6 & 5	Sinty mețal	Dry scrubber	1200	Common system	Avg. 11 Max. 17	160								Note A	58 Note B			
15	gases from dry scrubber.	B	None	None	None					V									- 4		
16	Local hood for UF ₆ Vaporizer.=Exhaust for UF ₆ vaporizer connections.	B	.3	None	Scrubber	400.	Single														Emergency use only.
												2									

Page 2 of 2

Area or Location CO-Oxide Plant

UE SUB STA HIGHWAY . ZLA 120 10L. EYAL ASMBLY PARR & DXIDE BLDG 110 N EL 15 VC. PD-<u>ĵ</u>@@¢ ANT HEFELUENT 424 2 EFFLUENI FOND ß SEPTIC × * CUNO SAND NH 252 0 DAM HOLDING 8 VL. SEW INV. EL. 426-8' SCALE APPROX . / -200 ₋┝┰╼╤ ŧ╘╘╤╘ -t-t-t-t-t -+-MO. PAC RR TO JOACHIM

GULF UNITED NUCLEAR FUELS CORPORATION

Liquid Effluent System for License: SNM-33

••••• Docket: .70-36 :...

Oxide plant Eleven 1 UF6 scrubber system 1 UF6 scrubber system 2 Oxide plant UF6 scrubber 0:5 Eleven 1:tter bottle after mixing analysis VF6 scrubber 0:5 Bottle Sortide plant UF6 scrubber 0:5 Bottle 2:9 Bottle 2:9 Bottle 1:tter 2:9 Bottle 1:tter 2:9 Bottle 1:tter 1:tter 2:9 Bottle 1:tter 1:tter	DISCHARGE	CONC. DISCHARGE POINT. LIC/ CC
Oxide plant 0.5 Eleven 1itter 2.9 bottle overflow bottk 0.5 Bottle 2.9 after Mine 0xide plant 0.9 None Pane 1 Jac 0xide plant 0.9 None Pane 1	See comments	Seë Efflue Pond
Oxide plant UF6 vaporizer 0,9 None Pan e		
Oride plant simp liquor 0.5 Sump 8 Sump		
ADU filtrates 350 tanks 400 tanks 2.7x10 iLime treat 2000 after chemical see Note A	Holding S	
ADU-filirates, 100 - Same as above	Bffluent Pond	
17 Substrate 24 None None DischargeRandom grab washing the sample & 3.7x10-3 filter. chemical analysis:		
8 finished 50 washing 50 see Note A		
9 Item plant 300 discard 300 See Note A None		

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Area or Location: CO-Liquid Waste Streams

COMMENTS

a) Discharge to effluent pond if U conc., is less than 0.02 gms U/liter. • • · · ·

b) Discharge to holding pond if U conc. is between 0.02 & 0.03 gms U/liter

c) Routed for recovery if greater than 0.03 gms U/liter.

Note At These are maximum release contentration values. Concentrations which exceed these values result in routing the liquid waste through recovery processing.

GULF, UNITED NUCLEAR FUELS CORPORATION .

Liquid Effluent System for License: SNM-33

Docket: 70-36

	I TEM KO	SOURCE	FLOW RATE GAL/DAY	HOLDING STATIONS	HOLDUP YOLUME, GAL	S A POINTS	MPLE	СОНС. µС/сс	TREATHENT	DISCHARGE Point	- DI
-	10	Laundry	85¥ ⁻ .3.	None	None	Dis- charge from washing machine	Grabisámple	Avg. 3x10 ⁻⁶ max 4.7x10 ⁻⁶	None	Effluent pond	Se
	11	Chem lab	1000	None	None	None	None		None	· · · · · · · · · · · · · · · · · · ·	
	12	Holding.Pond	Total of Item 5 & part of 1,2,3.& 4	Pond is holding. station		Pond	Grab sample.	8-1x10-5	sediment	None	
	-13	Effluent pond	Total of 6,7,8,9, 10,11 & part of 1,2,3 & 4	None		Pond- out fáll-	Grab sample	Avg 1.2x10 ⁻⁷ Nax 4.3x10 ⁻⁷	None	Joachim Creek	See
											-

