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340 FACILITY

Marcel

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

P.O. Box 47600 • Olympia, Washington 98504-7600
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May 5, 1997

Mr. James E. Rasmussen, Director
Environmental Assurance, Permits,
Policy Division
U.S. Department of Energy
P.O. Box 550
Richland, WA 99352

Dear Mr. Rasmussen:

RE: Notice of Construction (NOC) Approval Order for Removal of 340A Building
Tank Solids.

Your Notice of Construction (NOC) application for Removal of 340A Building Tank Solids was received by the Department of Ecology's Nuclear Waste Program on March 31, 1997.

After reviewing and processing your application, a copy of the draft Approval Order was sent to Mr. Hector Rodriguez for his review and comments on April 16, 1997. Mr. Rodriguez discussed the draft Approval Order with Mr. Marcel Szyszkowski on May 1, 1997.

The approval of this application is enclosed for your use. Failure to meet the approval conditions may result in the revocation of this permit, the issuance of Notices of Violation, the imposition of civil penalties, and other civil or criminal actions as provided for in Chapter 70.94 RCW.

If you or your staff have any questions regarding this permit, please call Mr. Marcel Szyszkowski at (360) 407-7147.

Sincerely,

Michael A. Wilson, Manager
Nuclear Waste Program

Enclosure

cc: Hector Rodriguez, USDOE
Al Conklin, WDOH



DEPARTMENT OF ECOLOGY

IN THE MATTER OF APPROVING A NONRADIO-)
ACTIVE AIR EMISSIONS NOTICE OF)
CONSTRUCTION FOR REMOVAL OF 340A BUILDING)
TANK SOLIDS FOR THE U.S. DEPARTMENT) APPROVAL ORDER
OF ENERGY IN RICHLAND, WASHINGTON) No. 97NM-137

To: U.S. Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

On March 31, 1997, a Notice of Construction (NOC) was submitted by the U.S. Department of Energy (Energy), Richland, for Removal of 340A Building Tank Solids.

In relation to the above, the Department of Ecology (the Department), State of Washington, pursuant to RCW 70.94.152, makes the following determination:

1. The proposed action will be in accordance with applicable rules and regulations, as set forth in chapter 173-400 WAC and 173-460 WAC, and the operation thereof, at the location proposed, will not result in ambient air quality standards being exceeded.
2. The proposed action will not have a significant adverse impact upon the environment.

THEREFORE, IT IS ORDERED that the project, as described in said Notice of Construction, is approved for construction and operation provided the following conditions are met:

1.0 TYPE OF PROPOSED ACTION

The removal of solids from the 340A Building tanks constitutes a modification, in accordance with WAC 173-460-020(14), and, in accordance with WAC 173-460-040, the proposed activities are subject to New Source Review. In accordance with WAC 173-460 and WAC 173-400, this document serves as a Notice of Construction (NOC) for periodically removing solids from the 340A Building tanks.

It should be noted that submittal of this document is intended to conditionally satisfy WAC 173-460 and WAC 173-400 NOC requirements for future tank solids removal campaigns. Future solids removal campaigns will be performed on an as-needed basis to support ALARA practices and/or principles, and there might be several years between campaigns. It is understood that future 340A Building tank solids removal campaigns will be considered to have satisfied WAC

173-460 and WAC 173-400 NOC requirements, if the following conditions are met (note: a campaign consists of the removal of all sludge in the subject tanks).

- Potential pollutant emissions from each campaign will not exceed the levels stated in this document.
- No more than one tank solids removal campaign will be performed during any given annual period.
- Potential Toxic Air Pollutant (TAP) and Criteria Pollutant emissions shall be limited to those identified in this NOC.
- The pollution control measures stated in this document are implemented.

2.0 BACKGROUND INFORMATION

The 340 Complex is a less-than-90-day storage unit for mixed waste generated on the Hanford site. The 340 Complex receives liquid waste from various buildings in the 300 Area via underground transfer lines, or by containers from generators supporting Hanford site programs.

The tanks used for waste storage at the 340 Complex include two 57 kiloliter tanks within the 340 Underground Storage Vault and six 30 kiloliter tanks within the 340A Building. The two underground vault tanks provide primary waste storage while the six tanks in the 340A Building provide reserve storage capacity.

The 340A Building tanks are not equipped with agitation devices and/or equipment. Consequently, past usage of the tanks has resulted in the formation, deposition, and settling of waste water solids.

The deposited tank solids contain radioactive material that represent a source of radiation exposure to workers. For as low as reasonably achievable (ALARA) purposes, the solids must be removed periodically from the tanks. The most recent tank solids removal effort occurred in the early 1980s.

3.0 PROJECT INFORMATION

Provided in this section are descriptions of applicable processes, ventilation and emissions controls, and monitoring.

3.1 PROCESS DESCRIPTION

The following sections provide descriptions of the 340A Building tanks and the proposed procedures for removing solids from the tanks.

3.1.1 340A Building Tank Description

The 340A Building tanks are described as follows:

- The tanks are housed in the 340A Building.
- The tanks consist of six aboveground stainless steel tanks.
- The approximate volume of each tank is 30 kiloliters.
- The dimensions for each tank are approximately 3 meters in diameter and 4.2 meters high.
- The top of each tank is provided with an access port (access lid) which is approximately 0.46 meter in diameter.
- Each tank is provided with a fill/drain port located on the tank side wall, approximately 0.15 meters above the bottom surface of the tank.
- The tank fill/drain ports, drain via hard piping, to the 340 Vault tanks.
- The tanks are interconnected via hard pipes.
- The tanks are maintained at negative pressure relative to the atmosphere via the 340 Facility KI powered exhaust/ventilation system (the differential pressure is >6 inches water gauge).
- The combined volume of sludge in the six tanks is approximately 1,670 liters.
- The tank sludge consist of water, radioactive particulates, metals, and hard water mineral salts.

3.1.2 Procedures for Removing Solids from the Tanks

The following methods will be employed to remove solids from the 340A Building tanks.

- Temporary containment device(s) will be configured to maintain negative pressure within the tanks by restricting the amount of air that enters the tanks via the tank access ports.
- The access lid will be removed from the tanks.
- An agitating device (air sparger, liquid pressure washer, or recirculating pump) and cleaning solution to aid in the solids suspension will be inserted into the tank access ports.
- The agitating device will be activated.

- Tanks will be drained to the 340 Vault tanks via the tank fill/drain valves.
- Solids agitation activities are expected to require approximately 2 hours per tank.
- After completing solids agitation and draining activities, the agitation equipment will be removed from the tanks by retracting the equipment into plastic sleeving.
- On removing the agitation equipment from tanks, the tank access lids will be replaced.

3.2 FACILITY LOCATION

The 340A Building tanks are located within the 340 Facility Complex in the 300 Area of the Hanford site. Figure 1 of the NOC shows the location of the 300 Area within the Hanford site. Figure 2 of the NOC shows the location of the 340 Facility Complex within the 300 Area. The Washington State Plane Coordinates for the 340A Facility are: N54475 E15475.

Address:

U.S. Department of Energy, Richland Operations Office
 Hanford Site
 300 Area, 340 Facility
 Richland, Washington 99352

The responsible manager's name and address are as follows:

Mr. T. K. Teynor
 Waste Programs Division
 U.S. Department of Energy, Richland Operations Office
 P.O. Box 550, Mail Stop S7-55
 Richland, Washington 99352
 (509) 372-1926.

3.3 VENTILATION AND EMISSIONS CONTROL SYSTEM DESCRIPTION

The following sections describe:

- Powered exhaust/ventilation system serving the 340A Building tanks.
- Temporary controls to be implemented when accessing tanks.
- Control equipment efficiencies.
- Pollution control technology standards.

3.3.1 Powered Exhaust/Ventilation System Description

The 340 Facility KI powered exhaust/ventilation system ventilates the 340A Building Tanks. Parameters associated with the operation of the KI powered exhaust/ventilation system include the following:

- The exhaust stack inner diameter at point of release to the environment is approximately 46 centimeters.
- Exhaust stack height is approximately 6.1 meters above ground level.
- Maximum flow rate of powered exhaust/ventilation system is approximately 68 cubic meters per minute.
- Average (actual) powered exhaust/ventilation flow rate is approximately 50.2 cubic meters per minute.
- Supply air for the 340 Facility KI powered exhaust/ventilation system is heated electrically in the winter to protect pipes from freezing.
- Powered exhaust/ventilation system pollution control equipment consists of a prefilter and two banks of high efficiency particulate filter media.

3.3.2 Temporary Controls

As noted in Section 3.1.2, temporary pollution controls will be implemented during the solids removal effort to prevent emissions of pollutants from the tank access port. Controls will consist of temporary barriers installed between the tank access port and the surrounding area. The barriers will be configured such that the amount of air that enters the tank via the tank access port is restricted sufficiently to maintain negative pressure within the tank. It should be noted that during solids removal activities, the tank differential negative pressures, with respect to the atmosphere, might be less negative than the routinely maintained differential pressures (as stated in Section 3.1.1, routine differential negative pressures are >6 inches water gauge).

Temporary pollution controls also will be implemented during the removal of equipment from the tanks. Emissions will be controlled by using plastic sleeving to provide a barrier between the equipment and the surrounding work area and the environment. Equipment removed from the tanks will be retracted into a plastic sleeve. After the equipment has been retracted into the plastic sleeve, the sleeve will be sealed.

3.3.3 Control Equipment Efficiencies

Particulate emissions will be controlled with a prefilter and two banks of filters consisting of high-efficiency particulate filter media. The high-efficiency particulate filters that will be used are subjected to annual in-place tests, which require a particulate removal efficiency of 99.95 percent for particulates with a 0.3 micron median diameter.

To determine the overall particulate decontamination factor (DF) for the control system, the individual component DFs were multiplied together. A DF of 2,000 was used for each high-efficiency particulate filter. The overall DF is $4.0 \text{ E}+06$.

3.3.4 Pollution Control Technology Standards

The 340 Facility KI powered exhaust/ventilation system pollution control equipment is managed in accordance with the following standards:

- 40CFR 60, Appendix A, Method 2.
- ANSI/ASME NQA-1.

3.4 MONITORING DESCRIPTION

The pollutant emissions estimation (Section 3.0) indicates that emissions are sufficiently low to protect human health and safety from potential carcinogenic and/or other toxic effects, pursuant to WAC 173-460-070 requirements. Therefore, no sampling/monitoring is proposed for nonradioactive pollutant air emissions resulting from the proposed operations.

4.0 EMISSIONS ESTIMATION

This section documents estimations of TAP and Criteria Pollutant emissions resulting from the proposed activities.

4.1 TOXIC AIR POLLUTANTS PER WAC 173-460

The following sections provide discussion of the applicability of WAC 173-460-040 and WAC 173-460-080 requirements for TAP emissions.

4.1.1 WAC 173-460-040 Applicability

Pursuant to WAC 173-460-040(2) requirements, increases in TAP emission rates that do not exceed levels cited in the WAC 173-460-080 Small Quantity Emission Rate (SQER) tables are not subject to New Source Review. However, the tables in WAC 173-460-080 do not provide SQERs for three of the TAPs that might be emitted during the proposed operations (Table 1 of the NOC). Therefore, under WAC 173-460-040 requirements, the proposed activities are subject to New Source Review.

4.1.2 WAC 173-460-080 Applicability

Pursuant to WAC 173-460-080 requirements, an Acceptable Source Impact Level (ASIL) analysis is required for Class A and Class B TAPS. The emissions estimation provided in this section has been prepared for the purpose of satisfying WAC 173-460-080 ASIL analysis requirements.

Table 1 of the NOC provides the estimated average emission rates of TAPs at the point of release to the environment and the estimated incremental ambient values (TAP concentrations experienced by the hypothetical nearest public receptor). It should be noted that the maximum incremental impacts of Class A and Class B TAPs to the hypothetical nearest public receptor are less than the associated ASILs listed in WAC 173-460-150 and WAC 173-460-160.

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4.2 CRITERIA POLLUTANTS PER WAC 173-400-030

Pursuant to WAC 173-400 requirements, estimated emissions of Criteria Pollutants are provided in this section. It should be noted that one Criteria Pollutant, lead, is expected to be emitted during the solids removal activities.

The estimated emission rates of Criteria Pollutants (lead) are provided in Table 2 of the NOC. Data in Table 2 of the NOC indicate that the maximal expected emissions of lead resulting from the proposed activities are insignificant.

5.0 SCHEDULE

In the coming years (through calendar year 2001 and possibly beyond), the 340 Complex will continue to serve as a less-than-90-day tank storage unit for mixed waste generated on the Hanford site. Furthermore, the 340A Building tanks will continue to provide reserve waste storage capacity.

To support future 340 Complex operations, 340A Building tank solids removal activities will continue to be performed periodically. Future solids removal campaigns will be performed on an as-needed basis to support ALARA practices/principles, and there might be several years between campaigns.

The schedule for performing future solids removal activities is not provided. However, each tank solids removal campaign is expected to require approximately 6 months to complete.

6.0 APPROVAL CONDITIONS

1. Any activities permitted under this Approval Order are in strict conformance with the description of the project (3.1 Project Description), and particularly satisfying the conditions described in 1.0 Type of Proposed Action.

All plans, specifications and other information submitted to the Department relative to this project and further documents and any further authorizations or approvals or denials in relation thereto

shall be kept at the Nuclear Waste Program of the Department in the "Air Permitting" files and by such action shall be incorporated herein and made a part thereof.

Nothing in this approval shall be construed as obviating compliance with any requirements of law other than those imposed pursuant to the Washington Clean Air Act and rules and regulations thereunder. Authorization may be modified, suspended or revoked in whole or in part for cause including, but not limited to, the following:

1. Violation of any terms or conditions of this authorization.
2. Obtaining this authorization by misrepresentation or failure to disclose fully all relevant facts.

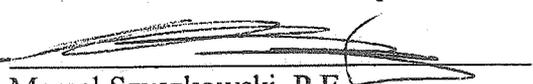
The provisions of this authorization are severable and, if any provision of this authorization, or application of any provision of this authorization to any circumstance, is held invalid, the application to any circumstance, is held invalid, the application of such provision to their circumstances, and the remainder of this authorization, shall not be affected thereby.

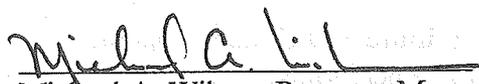
Any person feeling aggrieved by this Order may obtain review thereof by application, within 30 days of receipt of this Order to the Washington Pollution Control Hearings Board, P. O. Box 40903, Olympia, Washington 98504-0903. Concurrently, a copy of the application must be sent to the Department of Ecology, P.O. Box 98504-7600, Olympia, WA 98504-7600. These procedures are consistent with the provisions of Chapter 43.21B RCW and the rules and regulations adopted thereunder.

Dated at Lacey, Washington this 5th day of May, 1997.

PREPARED BY:

APPROVED BY:


Marcel Szyszkowski, P.E.
Regulatory and Technical Support Section
Nuclear Waste Program
Department of Ecology


Michael A. Wilson, Program Manager
Nuclear Waste Program
Department of Ecology