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FIVE YEAR REVIEW

OTTATI & GOSS/KINGSTON STEEL DRUM

SUPERFUND SITE

KINGSTON, NEW HAMPSHIRE

PREPARED BY:

U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION I

BOSTON, MASSACHUSETTS

Dennis Huebner, Chief
NH&RI Waste Management Branch

12/15/93
Date

I BACKGROUND

Pursuant to section 120(c) of the Comprehensive Environmental Response, Compensation and Liability Act, as amended, (CERCLA and 300.43 (s)(4)(ii) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), a periodic review (no less than every five years) of remedial action(s) is required for sites where hazardous substances, pollutants or contaminants remain above levels that allow for unlimited use or unrestricted exposure following the completion of all remedial actions at the site. The purpose of such a review is to determine the continued adequacy of the remedial action(s) implemented to provide protection of human health and the environment.

On May 23, 1991 EPA issued OSWER Directive 9355.7-02, which established a policy whereby five- year reviews are required at sites where (1) remedies were selected pre-SARA which would not allow unlimited use and unrestricted exposure upon completion and (2) where no hazardous substances will remain above levels that allow unlimited use and unrestricted exposure after the completion of the remedial action but the cleanup levels specified in the ROD will require five or more years to attain.

Five-year reviews are required to be conducted no less often than five years after the initiation of the remedial action at the site. The first phase of the remedial action at O&G was initiated in November, 1988 when contaminated soil was excavated and treated on a portion of the site. Since several other phases of the remedy remain to be completed, and since five years have elapsed, a five-year review is required.

II SITE HISTORY

The Ottati and Goss/ Great Lakes Container Corporation (O&G/GLCC) Site is located in rural southern New Hampshire, approximately three miles south of the center of the Town of Kingston, along state highway 125. The site consists of a 35-acre parcel that includes two distinct tracts; 28 acres owned by Senter Transportation Company(STC) and 5.88 acres owned the Great Lakes Container Corporation(GLCC). STC leased a one-acre parcel, located due west of the GLCC tract, to Ottati & Goss. Inc.(O&G) in 1978.

Drum reconditioning operations were conducted on the GLCC portion of the site, in a one-story cinder-block building, from 1959 to 1967 by the Conway Barrel and Drum Company. In 1967, the Kingston Steel Drum Company (KSD) was formed and continued operations on the site until 1973. In 1973, International Minerals and Chemical Corporation (IMC) purchased KSD and continued drum reconditioning operations

until 1976. At the time of the purchase, open waste ponds, referred to as the Kingston Swamp, and caustic lagoons were present. These ponds and lagoons were backfilled in 1973 and 1974. GLCC acquired the property in 1976 and continued operations until 1980. From March 1978 until July 1979, O&G operated a hazardous materials processing and storage facility on the one-acre parcel leased from STC. Materials processed at this facility allegedly included sludges and other wastes from the GLCC facility.

The site was listed on the NPL in September 1981.

III RESPONSE ACTIONS

EPA conducted emergency removal actions at the GLCC portion of the site between December of 1980 and July of 1982. Approximately 4000 barrels were processed and removed. IMC performed similar operations at the GLCC portion of the site in 1984.

In 1986 EPA completed an Remedial Investigation/ Feasibility Study and the Record of Decision (ROD) was issued on January 16,1987. The Remedial Investigation indicated that groundwater under the site was contaminated well above drinking water standards and a significant amount of soils and sediments were contaminated above levels protective of human health and the environment. Contaminants of concern in the groundwater included the following volatile organic compounds (VOC's): Benzene,Trichloroethylene, tetrachloroethylene and 1,2 dichloroethane. Polychlorinated byphenyls (PCB's) was the primary contaminant of concern in the soil and sediments, although high levels of VOC's were also found. The Remedy selected for the site included the cleanup of groundwater to drinking water quality using a pump and treat technology and the cleanup of soils and sediments to (1) levels protective of human health and the environment and (2)levels that would be consistent with the groundwater cleanup. The technology chosen for the soils and sediments included excavation and incineration for the PCB contaminated material and thermal desorption for the VOC contaminated material. The following cleanup levels were established in the ROD:

Groundwater - 5 ppb for each of the following four indicator compounds; Benzene, trichloroethylene, tetrachloroethylene and 1,2 dichloroethane.

Soils - 20 ppm for PCB's and 1 ppm for total VOC's.

Sediments - 1 ppm for PCB's and total VOC's.

In November of 1988 a group of PRP's entered into a consent decree with EPA for the cleanup of the soils on the O&G portion of the Site. That work was completed in 1989. The large cinderblock building on the GLCC portion of the site was demolished by EPA in late 1993. The design for the groundwater and remaining soils and sediment cleanup is currently underway.

IV SCOPE OF THE FIVE YEAR REVIEW

Five- year reiews are intended to evaluate whether the response action (remedy) remains protective of public health and the environment. Five year reviews in situations where the response action will ultimately result in unlimited access and unrestricted exposure, but will require more than five years to attain the cleanup levels, focus on the effectiveness of the treatment technology chosen and the specific performance levels established in the ROD. The scope of this five year review will, therefore, be limited to (1.) whether the technologies chosen remain appropriate given the time that has passed since the remedy was selected and (2.) whether attainment of the cleanup levels established in the ROD will still result in a protective remedy.

IV RESULTS AND RECOMMENDATIONS OF THE FIVE-YEAR REVIEW

A. Site Soil Cleanup Levels -
The VOC cleanup level of 1 ppm established in the ROD was predicated on the contribution of contamination to the groundwater as a result of leaching during precipitation events. This level is considered protective of human health and the environment.

The human health risk associated with the PCB cleanup of 20 ppm was evaluated using current information and the same residential scenario used in the ROD. The carcinogenic "risk" was calculated to be 3.1×10^{-5} which is within EPA's acceptable carcinogenic risk range of 10^{-4} to 10^{-6} (see attachment no. 1.). This level is therefore considered protective.

B. Site Sediments Cleanup Levels-
The 1 ppm cleanup level for PCB's in the sediments was based on literature values, rather than calculated risks, since techniques to estimate environmental risks were still under development when this ROD was issued. EPA is currently conducting an "environmental risk assessment", with regard to the site wetlands and sediments, using recently developed techniques to determine if the 1 ppm level is appropriate

and protective of the environment. Further, an evaluation of recent data gathered during the design studies indicate that certain pesticides exist in the wetlands at levels which may constitute a risk to the environment. The environmental risk assessment will also include an evaluation of these pesticides and will establish protective levels.

C. Site Groundwater Cleanup Levels -
The ROD identified the following four compounds as "indicator compounds" and set a cleanup level of 5 ppb for each. The overall goal of the groundwater cleanup was to attain a 10^{-5} cancer risk and to restore the ground water to drinking water quality. The 5 ppb level was based on the maximum contaminant levels established under the Safe Drinking Water Act and/or levels consistent with a 10^{-5} overall cancer risk. Consistent with current Region I policy, upon meeting the 5 ppb cleanup levels for all of the four contaminants, EPA will perform a risk assessment on the residual contamination to determine if the remedial action is protective. This risk assessment will follow EPA procedures and will assess the cumulative carcinogenic and non-carcinogenic risks posed by ingestion of the groundwater.

D. Technologies Chosen for Remediation -
The two technologies chosen for the soils and sediment treatment, thermal desorption and incineration, both remain appropriate. Thermal desorption was successfully used on the O&G soils in 1989 and is still considered a cost-effective and environmentally sound technology for VOC contaminated soils. Although some new technologies have been developed for treatment for PCB's wastes, incineration remains a cost-effective and appropriate technology for this site if designed and operated properly.

Pump and treatment technologies still remain appropriate for the remediation of contaminated groundwater. The ROD called for the groundwater to be treated by air stripping, with the possibility of several other unit operations, prior to the discharge to the ground. The air stream from the stripper will be treated by a carbon column prior to discharge to the ambient air.

E. Recommendations -
A subsequent five-year review will be conducted in November, 1998 if cleanup levels have not been attained by then.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
JFK Federal Building, Boston, MA 02203-2211

MEMORANDUM

DATE: November 17, 1993

SUBJ: Review of the Protectiveness of the 1986 Soil-Cleanup level for PCBs at the Ottati and Goss Superfund Site, NH

FROM: Ann-Marie Burke, Toxicologist AB
Superfund Support Section

TO: Dan Coughlin, Section Chief
NH Superfund Section

The following is a review of the protectiveness of the 1986 soil cleanup level for PCBs at the Ottati and Goss Superfund site. In this exercise I calculated the excess incremental lifetime cancer risk at the 1986 cleanup level (20ppm) by utilizing the current PCB slope factor and exposure parameters which are realistic for this site. The resulting incremental cancer risk associated with the 1986 soil cleanup level for PCBs (3.1×10^{-5}) is well within EPA's acceptable cancer risk range (10^{-4} to 10^{-6}). If you have any further questions, do not hesitate to call me at 223-5528.

RISK = EXPOSURE [DOSE] X TOXICITY [SLOPE FACTOR]

<u>Exposure</u>

$$\text{Exposure Dose (mg/kg-dy)} = \frac{C_s \times IR \times CF \times RAF \times F \times D}{BW \times AT}$$

C_s = chemical concentration in soil (mg/kg) = 20 (1986 cleanup level)

IR = soil ingestion rate (mg/dy) [Child = 200/adult = 100]

CF = conversion factor = 10^{-6}kg/mg

RAF = relative absorption factor for PCBs/soil (unitless) = 30% - Region 1 default value

F = frequency (dy/yr) = 150

D = duration (years) = [child=6/adult=24]

BW = body weight (kg) [child=15/adult=70]

AT = averaging time (dys) = 70yrsx365dys/yr

Lifetime exposure dose = child dose + adult dose

$$\text{Exposure Dose}_{child} = \frac{20 \times 200 \times 10^{-6} \times 0.3 \times 150 \times 6}{15 \times 70 \times 365} = \frac{1.08}{383250}$$

$$= 2.8 \times 10^{-6}$$

$$\text{Exposure Dose}_{adult} = \frac{20 \times 100 \times 10^{-6} \times 0.3 \times 150 \times 24}{70 \times 70 \times 365} = \frac{2.16}{1788500}$$

$$= 1.2 \times 10^{-6}$$

Lifetime exposure dose $= 2.8 \times 10^{-6} + 1.2 \times 10^{-6} = 4.0 \times 10^{-6}$

Risk = Lifetime exposure dose x PCB slope factor

$$= (4.0 \times 10^{-6} \text{mg/kg-dy})(7.7(\text{mg/kg/dy})^{-1}) = \underline{3.1 \times 10^{-5}}$$

EPA's acceptable risk range : 10^{-4} to 10^{-6}

cc: C. DeLoi