SUMMARY OF INFORMATION FOR THE ASSESSMENT OF IMPACTS TO THREATENED AND ENDANGERED SPECIES AND CRITICAL HABITATS IN THE VICINITY OF THE HONEYWELL METROPOLIS WORKS FACILITY IN METROPOLIS, INDIANA

1.0 INTRODUCTION

The U.S. Nuclear Regulatory Commission (NRC) staff is currently reviewing an application submitted by Honeywell Specialty Materials, Inc., to renew the Metropolis Works (MTW) facility's Source Material License, SUB-526, for a period of 10 years.

The MTW site is located approximately one half mile northwest of the Metropolis, Illinois city limits, in Massac County at the southern tip of Illinois. The facility is located on approximately 1,000 acres of land that is bordered by U.S. Highway 45 to the north, the Ohio River to the south, an industrial coal blending plant to the west, and privately-owned, developed land to the east. Plant operations are conducted in a fenced restricted area covering approximately 59 acres in the north-central portion of the site.

As part of the environmental review, the NRC staff is preparing an Environmental Assessment (EA) in accordance with the requirements of the National Environmental Policy Act of 1969, as amended, as specified in 10 CFR Part 51 of the NRC's regulations. In support of the environmental review, the NRC staff is also considering the potential impact of the proposed action on endangered species, in accordance with the Endangered Species Act. Because the facility is located in close proximity to the Commonwealth of Kentucky and produces liquid effluents that are discharged to the Ohio River, the NRC staff is requesting information regarding threatened and endangered species and critical habitats from the U.S. Fish and Wildlife Service (FWS) Southeast Region (Region 4), as well as the Midwest Region (Region 3) in which the facility is located.

2.0 BACKGROUND

Honeywell's MTW facility is a multi-product chemical manufacturing facility producing sulfur hexafluoride, iodine and antimony pentafluorides, liquid fluorine, carbon monofluoride, and uranium hexafluoride (UF_6). The production of UF_6 is the only operation at the plant licensed by NRC, as required under 10 CFR Part 40. The licensed facility is designed to produce about 14,000 metric tons (15,430 tons) per year of uranium as UF_6 from uranium ore concentrates. The plant feed is uranium ore concentrates and the primary product is high purity UF_6. The UF_6 product is first shipped to customers for enrichment of the uranium-235 (U-235) isotope; following enrichment, the uranium is converted into fuel for use in nuclear power reactors.

The MTW operation uses the "fluoride volatility process" in the production of UF_6, where the ore concentrates feed moves through the successive steps of feed preparation, reduction, hydrofluorination, fluorination and distillation. Chemical reactions are carried out in fluidized bed reactors.

The operation of this facility involves some release of regulated (radioactive) material and potentially harmful chemicals; however, these effluents are controlled by the NRC's regulations, the facility's source material license, and permits issued by the Illinois Environmental Protection Agency. Plant liquid effluent is monitored in accordance with the terms and conditions of the facility's National Pollutant Discharge Elimination System (NPDES) permit (No. IL 0004421); storage and treatment of hazardous waste generated on-site are regulated by a Resource Conservation and Recovery Act (RCRA) permit (No. B6-65-CA-11); and air effluents are monitored by a Title V Clean Air Act permit (No. 127854AAD). No changes to these permits are required by this license renewal action. Table 1 provides a summary of the monitoring results of the plant's effluent at Outfall 002 for the last four years (2001 to 2004).

Table 1. Summary of Monitoring Results for NPDES Outfall 002 – 2001 to 2004

		2001		2002		2003		2004	
Parameter	Units	Max.	Avg.	Max.	Avg.	Max.	Avg.	Max.	Avg.
Flow Rate	MGD	4.73	3.40	5.03	3.54	4.86	3.27	4.75	3.42
Uranium	mg/L	1.19	0.19	0.89	0.10	0.55	0.10	0.52	0.08
pH	SU	8.9	7.4	7.6	7.4	7.9	7.4	7.8	7.4
Temperature	°C	22.8	19.8	21.9	19.3	22.3	19.3	22.2	19.7
Total Fluorides	mg/L	8.90	2.92	7.14	3.25	18.52	3.16	8.92	1.92
Total Soluble Solids (TSS)	mg/L	31.40	2.11	5.20	1.30	7.40	1.81	6.40	1.18
Biochemical Oxygen Demand (BOD)	mg/l	18.75	4.23	16.42	5.05	7.08	2.54	6.66	1.28

The application for renewal of the license does not identify any planned changes to the current uranium conversion process; however, production is expected to increase gradually from the current volume of 14,000 metric tons to 15,000 metric tons per year beginning in 2008. The application identifies several planned modifications to the facility, including: (1) closure of all surface impoundments by the year 2020; (2) an expansion of the existing environmental protection facility to be completed and operational by the end of 2005; and (3) the installation of a cooling tower in 2006. These facility modifications are expected to improve the facility's environmental performance.

3.0 THREATENED AND ENDANGERED SPECIES

Honeywell's environmental report (ER), submitted in support of the MTW license renewal application, provided a combined list of Federal- and State-listed threatened and endangered species in Massac County (see Table 2). The ER also states:

> "Of the species common to both lists, only four species have actually been collected in Massac County. They are the Pink mucket pearly mussel (*Lampsilis abrupta*), Fat pocketbook pearly mussel (*Potamilis capax*), Least tern (*Sterna antillarum*), and Spectacle case mussel (*Cumberlandia monodonta*) according to the USFWS (2005). That authority also notes that the Indiana bat (*Myotis sodalis*) potentially occurs in all counties of the state.
>
> Included in the state list for Massac County are 28 species also listed nationally by the U.S. Fish and Wildlife Service (16 as endangered, 9 as threatened, and 3 as candidates) according to USFWS (2005).

> Of the 28 federally listed species, 20 are considered extirpated from Illinois or otherwise unlikely to occur in the project area. The three listed birds are all likely to be seasonal migrants in Massac County. Of the five other species possibly occurring within the county, two (Eastern massasauga rattlesnake and Decurrent false aster) are terrestrial, and three are clams historically found in the Ohio River."

With respect to the assessment of threatened and endangered species, the ER concludes that simply re-licensing the plant and making modifications to existing systems within the 59-acre exclusion zone requires no additional destruction or modification of terrestrial and aquatic habitats. Therefore, it has no potential adverse impact on the species that might inhabit them as residents and migrants. Additionally, abandoning exposed waste ponds in favor of closed-cycle waste treatment is beneficial and decreases the potential adverse impacts associated with the uncovered ponds, such as the threat of death or injury to terrestrial animals and migratory birds. The ER did not identify any wildlife sanctuaries, nature preserves, refuges, conservation areas or rare, unique, or critical habitats on or in close proximity to the MTW site.

Table 2. ***Federal- and State-listed threatened and endangered species in Massac County***

Common Name	Scientific Name	Status		Possible occurrence in Massac County
		Federal	State	
Mammal				
Indiana bat*	*Myotis sodalis*	E		Very unlikely
Gray bat	*Myotis grisescens*	E		Unlikely
Rice rat	*Oryzomys palustris*		T	Confirmed
Bird				
Bald eagle	*Haliaeetus leucocephalis*	T	T	Seasonal migrant
Least tern*	*Sterna antillarum*	E	E	Seasonal migrant
Piping plover	*Charadrius melodus*	E		Seasonal migrant
Common moorhen	*Gallinule chloropus*		T	Confirmed
Mississippi kite	*Ictinia mississippiensis*		E	Confirmed
Least bittern	*Ixobrychus exilis*		T	Confirmed
Loggerhead shrike	*Lanius ludovicianus*		T	Confirmed
Osprey	*Pandion haliaetus*		E	Confirmed
Reptile				
Eastern massasauga	*Sistrurus catenatus*	C		Possible
Eastern ribbon snake	*Thamnophis sauritus*		T	Confirmed
Amphibian				
River cooter	*Pseudemys concinna*		E	Confirmed
Fish				
Pallid sturgeon	*Scaphirhynchus albus*	E		Very unlikely
Redspotted sunfish	*Lepomis miniatus*		T	Confirmed
Taillight shiner	*Notropis maculates*		E	Confirmed
Northern madtom	*Noturus stigmosus*		E	Confirmed
Clam				
Clubshell	*Pleurobema clava*	E		Extirpated
Fanshell	*Cyprogenia stegaria*	E		Extirpated

Fat pocketbook*	Potamilis capax	E	E	Confirmed

Common Name	Scientific Name	Status		Possible occurrence in Massac County
		Federal	State	
Clam (continued)				
Higgins eye pearlymussel	*Lampsillis higginsii*	E		Very unlikely
Orange-footed pimpleback pearlymussel	*Plethobasus cooperianus*	E	E	Confirmed
Pink mucket pearlymussel*	*Lampsilis orbiculata*	E		Very unlikely
Sheepnose	*Plethobasus cyphyus*	C	E	Confirmed
Spectaclecase*	*Cumberlandia monodonta*	C	E	Confirmed
Ebonyshell	*Fusconaia ebena*		T	Confirmed
Black sandshell	*Ligumia recta*		T	Confirmed
Ohio pigtoe	*Pleurobema cordatum*		E	Confirmed
Elephant-ear	*Elliptio crassideus*		T	Confirmed
Rabbitsfoot	*Quadrula cylindrical*		E	Confirmed
Snail				
Iowa Pleistocene snail	*Discus macclintocki*	E		Very unlikely
Insect				
Hine's emerald dragonfly	*Somatochlora hineana*	E		Very unlikely
Karner blue butterfly	*Lycaeides melissa samuelis*	E		Extirpated
Butterfly	*Ellipsaria lineolata*		T	Confirmed
Crustacean				
Ilinois cave amphipod	*Gammarus acherondytes*	E		Very unlikely
Bigclaw crawfish	*Orconectes placidus*		E	Confirmed
Plant				
Decurrent false aster	*Boltonia decurrens*	T		Possible
Eastern prairie fringed orchid	*Platanthera leucophaea*	T		Very unlikely
Lakeside daisy	*Hymenoxys herbacea*	T		Extirpated
Leafy prairie-clover	*Dalea foliosa*	E		Very unlikely
Mead's milkweed	*Asclepias meadii*	T		Very unlikely

Pitcher's thistle	*Cirsium pitcheri*	T		Very unlikely

Common Name	Scientific Name	Status		Possible occurrence in Massac County
		Federal	State	
Plant (continued)				
Prairie bushclover	*Lespedeza leptostachya*	T		Very unlikely
Price's potatobean	*Apios priceana*	T		Extirpated
Small whorled pogonia	*Isotria medeoloides*	T		Very unlikely
Large sedge	*Carex gigantean*		E	Confirmed
Sedge	*Carex reniformis*		E	Confirmed
Silverbell tree	*Halesia Carolina*		E	Confirmed
Narrow-leaved sunflower	*Helianthus angustifolius*		T	Confirmed
Bloodleaf	*Iresine rhizomatosa*		E	Confirmed
Two-flowered melic grass	*Melica mutica*		E	Confirmed
Lea's bog lichen	*Phaeophysica leana*		T	Confirmed
Water elm	*Planera aquatica*		T	Confirmed
Tubercled orchid	*Platanthera flava*		E	Confirmed
Willow oak	*Quercus phellos*		T	Confirmed
White basswood	*Tilia heterophylla*		E	Confirmed
Galingale	*Cyperus lancastriensis*		E	Confirmed
Eryngo	*Eryngium prostratum*		E	Confirmed
Boykin's dioclea	*Galactia mohlenbrockii*		E	Confirmed
White melanthera	*Melanthera rivea*		E	Confirmed
American snowbell	*Styrax Americana*		T	Confirmed

* Federally-listed species in Massac County, per USFWS Region 3 web site (http://www.fws.gov/midwest/RockIsland/activity/endangrd/il_list.htm)

T = Threatened

E = Endangered

C = Candidate

4.0 REFERENCE

United States. Fish and Wildlife Service. County Distribution of Federally Listed Species in Illinois. Rock Island, IL, January 2005.