

From: William G. Snell (WGS), RTT  
To: TCJ T. Johnson, NMSS  
Date: Thursday, February 16, 1995 11:27 am  
Subject: CHEVRON/ENGELHARD

Tim,

Attached is a brief chronology and current status on Chevron and Engelhard. We are going to make a final decision on the level of responsibility that we (the NRC) will assume at this site, and would like NMSS's input. The attachment discusses our proposed position. Please review and then call me so I can answer any questions and get any feedback you have on this issue.

Thanks  
Bill Snell (708) 829-9871

CC: GLS

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## CHRONOLOGY

### CHEVRON/ENGELHARD

- 1942 - Manhattan Engineer District (MED) contracted with Harshaw Chemical Company for production of  $UF_4$  (in the foundry building).
- 1943 - Production of  $UF_6$  began in Building G1 (Plant C).
- 1947 - Operation substantially expanded.
- \*\*\*\* - Analytical work was performed in Building K1.  
Work was performed under MED and AEC contracts.  
Equipment and materials was stored in various building onsite.
- 1951 - Production of  $UF_4$  discontinued.
- 1953 -  $UF_4$  plant dismantled in May.
- 1953 - AEC personnel visit site for pre-decontamination survey and basis for remediation contract.
- 1957 - Oak Ridge Operations Office conduct another site survey.  
Supplemental Agreement added to contract in June 1958 that assigned to the contractor responsibility for deconning all equipment transferred to them and the premises used in performance of the contract. Also, the decontamination had to be performed in accordance with the recommendations of the report from the above survey.
- 1959 - The plant site (including buildings) was released from AEC control upon termination of contract on 12/23/59, which essentially released AEC from all liabilities arising from the contract.
- 1976 - An initial radiation survey of Plant C was performed under the Formerly Utilized Sites Remedial Action Program (FUSRAP) by Argonne National Laboratory (ANL) and the Chicago Operations Office. Survey found residual contamination in Plant C and in adjacent soil areas.
- 1976-1979 - Radiological surveys of entire Harshaw site performed by ANL. Identified Plant C as having major contamination, with significant levels of contamination found in 16 other buildings and 32 exterior locations.
- 1978 - DOE's General Counsel indicates DOE has no legal responsibility or authority under the Atomic Energy Act of 1954 as amended to undertake a cleanup of the Harshaw site. A subsequent review of substantial additional information clearly substantiated the initial opinion of the General Counsel.

- 1984 - ANL issues the results of their 1976-1979 survey of the Engelhard/Chevron site: "Several soil samples were taken from around the site. Analyses of these samples indicated extensive soil contamination, as well as suspected contamination of the river bed in the vicinity of the plant outfall. Scheduled subsurface investigation of the site, as well as of the river bed and sewer system, have not been conducted. ... the depth of contamination is unknown ... results indicate that the subsurface contamination extends a foot or more in depth in some locations. The contaminating material seems to be normal uranium exclusively."
- 1984 - DOE notifies ODH and EPA that DOE has no authority to conduct remedial action at Harshaw.
- 1991 - February 26 letter from ODH to NRC: ODH would like to require Engelhard to register with State so that ODH could monitor radioactive materials at the site and any decontamination efforts. Wants to know if NRC has any objection.
- 1991 - March 27 letter from NRC to ODH: NRC has no objection to ODH seeking registration from Engelhard for the purpose of monitoring radioactive materials at the site and any decontamination efforts.
- 1991 - August 5 letter to Engelhard from ODH: ODH authorized release of Building P-1 for demolition. All survey readings were below limits specified by RG 1.86.
- 1993 - April 5 letter from Chevron to ODH: Chevron states site is not licensed by NRC or ODH. Chevron has received requests from ODH to register site, but it is unclear which regulatory body has authority.
- 1993 - June 30 memorandum from NRC OGC: The only viable basis for NRC jurisdiction would be that the uranium contamination exceeds the unimportant quantity threshold in 10 CFR 40.13(a) and presents an unacceptable risk to health and safety requiring regulatory oversight. If that is the case, it should be handled like any other SDMP site that is unlicensed.
- 1994 - March 7 onsite inspection by Ken Lambert. Confirmed levels of contamination. In Exit Meeting section of report (999-90003/94023), it was stated, "... that if NRC assumes regulatory responsibility for the Chevron building, it would most likely assume regulatory responsibility for the Engelhard buildings and grounds that are contaminated."
- Note - Buildings at the site had a letter and number designation. Within buildings, operations taking place had letter designations as a "plant". Technically, the UF<sub>6</sub> operations took place in Building G-1, at Plant C. This distinction is not always followed with reference to Building C being made as often as Plant C. The Chevron plan uses both terms Building C and Plant C, while the

Engelhard plan uses the term Building G-1. Essentially, they all refer to the same facility.

- 1994 - By letter dated November 28, Chevron submits "Decommissioning Plan For Plant C" to NRC RIII for review.
- 1994 - By letter dated December 19, Engelhard submits "Decontamination Plan For Engelhard Corporation Pavement and Soils Areas Surrounding Building G-1" to NRC RIII for review.
- 1995 - By letter dated January 13, RIII provides response to Chevron on their Plan. Plan was unacceptable and needed additional clarification and information. Problem was Chevron had not hired a contractor to perform the work. The Plan was a "generalized plan" that would be used as a basis for going out for bids for hiring someone to conduct the work. Once a contractor was hired, the Plan would be revised by the contractor to incorporate their procedures, equipment, etc.

#### CURRENT STATUS

- Review of Engelhard Plan is completed with response being drafted. It was almost a carbon copy of Chevron's, so it has the same shortcomings. Both Chevron and Engelhard are accepting bids and expect to hire a contractor by the end of February 1995. It is their hope that they can agree on the same contractor.
- The question of the isotopic content of the contamination has been raised. The past studies have referred to the contamination as natural uranium, implying a soil remediation level of 10 pCi/g. However, Engelhard contends that no daughter products are present, and want to use 30 pCi/g. We have told them we will agree to a higher level (per HPPOS-292) if they can show that the daughters are absent. They have proposed taking four samples (soil, concrete) and conducting gamma spec on all four samples plus an alpha spec on one of the samples. We intend to agree that will be adequate. They have also provided some of the isotopic analysis done by Argonne in the late 1970's to support their position.
- We have had several phone discussions with the Ohio Department of Health (ODH). The question has been whether the NRC should also take the lead for the remediation of the Engelhard area surrounding Plant C. ODH has been working with Engelhard in the past (1991) on the remediation of another building at this site. In addition, Engelhard is formally registered with the State of Ohio in this regard. The concern was that for continuity, would it be better for one agency to have the lead for all the work that was to be done under these two plans, since most of the work would be done in unison and probably with the same contractor. ODH has agreed that it would make sense for the NRC to take the lead for the remediation of the grounds surrounding Plant C.

As it stands now, our proposal is that we would take the lead for both the Chevron Plan C remediation and the remediation of the area surrounding Plan C by Engelhard. If Engelhard chose to remediate any

other areas onsite that are known to be contaminated as part of the same effort, we would oversee that work also. ODH would assist us as a "contributory agency". Other buildings and areas that are contaminated that are not part of this effort will be left for ODH to follow up on with Engelhard.

- The other buildings and areas with contamination discussed above are probably less than 20% of the total onsite contamination. Most of it is in buildings that are occupied. Engelhard's current intent is to wait several more years until the building occupants leases end, and then they can remediate the buildings in conjunction with their expected demolition. The contamination is fixed, has been roped off, and is not a current health and safety concern. However, Engelhard is reviewing this with concern to future escalating costs of disposal.

#### ACTION

- We would like to finalize our position with ODH on what level of responsibility we intend to assume for this site. We would like NMSS input on what our position should be.



February 21, 1995

DocID: B  
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Engelhard Corporation  
Chemical Catalysts Group  
ATTN: Mr. A. G. Kopas, Manager  
Environmental Services  
120 Pine Street  
P.O. Box 4017  
Elyria, OH 44036-2017

SUBJECT: DECONTAMINATION PLAN REVIEW

Dear Mr. Kopas:

We have completed our review of your "Decontamination Plan For Engelhard Corporation, Pavement and Soils Areas Surrounding Building G-1, 1000 Harvard Avenue, Cleveland, Ohio," and our comments are attached as Enclosure 1. We found your submittal generally acceptable, but several deficiencies need to be addressed before it can be approved. Our primary concern is the failure to adequately address the characterization survey. The normal review process for securing NRC release of a radiologically contaminated site consists of the following steps:

1. Submittal of a site characterization plan for NRC approval;
2. Performance of site characterization;
3. Submittal of the site characterization report for NRC approval;
4. Submittal of a remediation plan for NRC approval;
5. Site remediation;
6. Conduct of a termination survey in accordance with the protocols of NUREG/CR-5849, "Manual for Conducting Radiological Surveys in Support of License Termination", followed by submittal of a report of that survey to NRC for approval;
7. Performance of a confirmatory survey by NRC; and
8. Release of the site when the confirmatory survey verifies that release requirements have been satisfied.

These steps are normally sequential and distinct. However, concurrent pursuit of more than one effort, such as combining remediation with characterization, or verification with remediation, although normally discouraged, is not precluded. The plan you have provided clearly specifies concurrent characterization, remediation, and verification. In this case, because of the previous radiological assessment (conducted by Argonne National Laboratory from 1976 to 1979), we see no reason to preclude you from conducting

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concurrent characterization, verification and remediation. However, neither the Site Safety and Health Plan or the Characterization Plan have been provided. We will need to review and approve both of these documents prior to giving our approval to begin site remediation.

For additional information, we have enclosed (Enclosure 2) the most recent revision of the draft "Branch Technical Position on Site Characterization for Decommissioning" which was issued in November 1994. We suggest that you review this document for use in describing your site characterization plan.

As you are aware, Chevron Chemical has provided us with a copy of their plan for the decommissioning of the Chevron Building G-1. In reviewing their plan, we noted one possible inconsistency between your two plans that needs to be addressed. This possible inconsistency regards the criteria to be selected for remediation of residual activity in the soil. Our concern regarding this issue is discussed further in the attached comments. However, based on your discussions with Chevron, whose plan we had already commented on, you discussed this issue with Mr. William Snell in NRC Region III in a phone call on January 31, 1995. During that call, you agreed you would collect and analyze several samples to support your position. As a followup, you sent us a letter dated February 13, 1995, in which you proposed to collect four samples, conduct a gamma spectrometry on each sample, and conduct an alpha spectrometry on one of the samples. We have reviewed your proposed plan for sampling and analysis and agree that it should be adequate to determine whether the radioactive contamination is purified uranium without its daughters present.

Based on our comments, you are requested to prepare and submit for approval, within 60 days, revisions to the decommissioning plan, including the Characterization Plan and the Site Safety and Health Plan.

We suggest a teleconference call to discuss our comments. This will give us an opportunity to explain our rationale for our suggested changes to your plan. Please contact Mr. William Snell at (708) 829-9871 to arrange a suitable time.

Sincerely,  
Original Signed By  
W. G. Snell for  
Gary L. Shear, Chief  
Fuel Cycle and Decommissioning Branch

Project Code: 687

Enclosures: As stated

cc w/encl 1 only: J. Glenn, NMSS  
T. Johnson, NMSS  
D. C. Baer, Ohio Department of Health

DOCUMENT NAME: B:\ENGLHARD.PLN

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NAME	Snell WGS		Shear WGS					
DATE	02/21/95		02/21/95					

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Enclosure 1

Region III Comments on  
Decontamination Plan for Engelhard Corporation  
Pavement and Soils Areas Surrounding Building G-1  
1000 Harvard Avenue, Cleveland, Ohio

Page 2, Section 2.0

The third paragraph refers to Reference 2.5. Since there is no such reference provided in Section 2.4, *Reference*, please correct this error.

Page 2, Section 2.0

The plan describes the onsite radioactive contamination as "normal uranium (refined uranium which is neither enriched nor depleted in the  $^{235}\text{U}$  isotope including its short half-life daughters -  $^{234}\text{Th}$  and  $^{234}\text{Pa}$ )". The preface to the Argonne Report stated "the contaminating material seemed to be normal uranium exclusively." The Chemical Waste Management Report states the contaminant was "natural uranium and its decay daughter thorium". The plan states that the remediation level for residual soil activity will be 30 pCi/g, "(it is assumed that normal uranium is no more hazardous than enriched uranium; therefore the limit of 30 pCi/g should be more than adequate to meet the exposure guidelines)."

Because of the discrepancy between what was stated by the Argonne Report, the Chemical Waste Management Report, and your plan, and the lack of clarity as to the nature of the activity, a technical justification will need to be provided to support a remediation value in excess of 10 pCi/g, the criteria for natural uranium. Based on a January 31, 1995 telephone call between NRC Region III, Engelhard and Chevron, and a February 13, 1995 letter from Engelhard, it is our understanding that Engelhard will be collecting soil and concrete samples to determine the isotopic content of the contamination. We understand that gamma spectrometry will be performed on all samples and alpha spectrometry on one sample. The results of these sample analyses will then be provided to the NRC to support any value selected for remediation that exceeds 10 pCi/g. The value selected should be consistent between the Chevron and Engelhard plans.

Page 3, Section 2.1.2

This section states that the contractor will provide a Site Safety and Health Plan and a Radiological Characterization Survey Plan prior to mobilization of the decommissioning effort. Both of these plans will need to be provided for review and approval before approval of the Decommissioning Plan.

The Characterization Plan is key in that it is intended to provide a substantial portion of the data in support of the Final Radiological Status Survey. Because the purpose of a characterization study is to identify areas needing remediation, statistically rigorous data collection comparable to that required for a final termination survey is not necessary if the results are sufficient to guide remediation to levels permitting release of the site for unrestricted use. However, when characterization data is to be applied to the final survey if they show compliance with the criteria for unrestricted



release, then you must specify their collection follows the guidance in NUREG/CR-5849, *Manual for Conducting Radiological Surveys in Support of License Termination*. Please provide your characterization survey plan consistent with NUREG/CR-5849. Please also provide a copy of the Site Safety and Health Plan.

Pages 4-5, Section 2.1.2

Although this section discusses gridding, surveying and remediation of soil and concrete surfaces, no discussion is provided addressing storm drains in the area. With known ground contamination and onsite storm drains that discharge into the Cuyahoga River, provide information on what surveys will be conducted to determine whether any drains are contaminated and if so, determining whether the contamination exists in the Cuyahoga River.

Page 23, Section 3.4

This section discusses the temporary onsite storage of radioactive waste generated during the decommissioning operation. Be advised that it is our position that if radioactive waste can not be shipped offsite within 60 days of approving the final termination survey report (which would authorize unrestricted release of the site), we may require you to apply for a license to store the waste.

General Comment

The lack of a site map makes it difficult to visualize the layout of the site. Please provide a figure showing the site.