CORRES. CONTROL
OUTGOING LTR NO.
94 RF 00619

DIST.	LTR	ENC
BENEDETTI, R.L.		
BENJAMIN, A.		
BERMAN, H.S.		
BRANCH, D.B.		
CARNIVAL, G.J.		
COPP, R.D.		
DAVIS, J.G.		
FERRERA, D.W.		
HANNI, B.J.		
HARMAN, L.K.		
HEALY, T.J.		
HEDAHL, T.		
HILBIG, J.G.		
KIRBY, W.A.		
KUESTER, A.W.		
LEE, E.M.		
MANN, H.P.	X	
MARX, G.E.		
McDONALD, M.M.		
McKENNA, F.G.		
MONTROSE, J.K.		
MORGAN, R.V.		
POTTER, G.L.		
PIZZUTO, V.M.		
RILEY, J.H.		
SANDLIN, N.B.		
SHEPLER, R.L.		
STEWART, D.L.		
SULLIVAN, M.T.		
SWANSON, E.R.		
WILKINSON, R.B.	X	
WILLIAMS, S. (ORC)		
WILSON, J.M.		
ZANE, J.O.		
Peterman	X	
Bushy	X	
Stiger, S.G.	X	
Action Tracking	X	X
Environmental Records Center (9)	X	X
CORRES. CONTROL	X	X

CLASSIFICATION:		
UCNI		
UNCLASSIFIED	X	
CONFIDENTIAL		
SECRET		

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DATE

IN REPLY TO RFP CC NO: 5003

ACTION ITEM STATUS
☐ OPEN ☒ CLOSED
☐ PARTIAL

LTR APPROVALS: BDP; WSB

ORIG & TYPIST INITIALS BDP:jlm

RF-46469 (Rev. 9/92)

EG&G ROCKY FLATS

EG&G ROCKY FLATS, INC.
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 966-7000

000021835

January 13, 1994

94-RF-00619

Martin H. McBride
Acting Assistant Manager for Transition and
Environmental Restoration
DOE, RFO

Attn: Bruce K. Thatcher

TRANSMITTAL OF COMMENTS AND RESPONSES TO THE SEPTEMBER, 1993 HEALTH AND SAFETY PLAN FOR OPERABLE UNITS 8, 9, 10, 12, 13, AND 14 – SGS-022-94

Enclosed please find attached the Health and Safety Plan for OUs 8, 9, 10, 12, 13, and 14 comments and responses for the operable units mentioned above. These comments were also delivered under separate cover on December 20, 1993.

If you have any questions, please call Bruce Peterman of Remediation Project Management at extension 8659.

Susan G. Stiger
Associate General Manager
Environmental Restoration Division

BDP:jlm

Orig. and 1 cc – M. H. McBride

Enclosure:
As Stated

cc:
A. H. Paoule – DOE, RFO
R. J. Schassburger – " "
M. N. Silverman – " "

ADMIN RECORD
IA-A-000366

1/18

5003-RT-4D

JACOBS ENGINEERING GROUP INC.

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December 28, 1993

Mr. Bruce Peterman
Rocky Flats Plant-Interlocken
EG&G Rocky Flats, Inc.
P.O. Box 464
Golden, Colorado 80402-0464

Subject: Response to U.S. Department of Energy (DOE) comments on the Integrated Operable Unit (OU) Health and Safety Plan (HSP)

Dear Mr. Peterman:

The responses to Loren Gunderson's comments to the Integrated OU HSP follow. Note that the appropriateness of the responses was confirmed at the meeting held earlier with DOE.

Serious Errors and Omissions

Comment No. 1: This section does not address the implementation/responsibilities/ authorities of this plan in regard to subcontractors at the site.

Response: Subcontractor responsibilities have been added to Section 2.0 of the HSP.

Comment No. 2: This map is not adequate in providing the information necessary for an employee (unfamiliar with the plant site) to quickly find the onsite medical facilities. Street names and the location of the Operable Units would be an improvement. If it is practical, eliminate nonessential information to reduce the visual "clutter".

Response: At the time of these plans, generation maps showing the requested information were unavailable. Since then, Jacobs has developed maps with the information and has inserted them into the HSP as Figure 3-4.

Comment No. 3: There are several categories of training that are not mentioned here: Hazard Communication, daily safety briefing and forklift operation. A requirement that personnel operating motor vehicles be licensed is recommended.

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Hazard Communication training will be conducted as a part of the site-specific orientation meetings, and daily safety briefings will be conducted before entry into each Individual Hazardous Substance Site (IHSS). The HSP has been modified to reflect these requirements in Sections 4.1.5 and 5.4, respectively. Section 4.1.7 has been revised to reflect the requirement for a valid motor vehicle license to be kept as a part of the project files.

No. 4: Compliance with 29 CFR 1910.120 (f) (3) (D) requires that a medical examination be made available to an employees as soon as possible upon notification (by an employee) that symptoms of a possible overexposure to hazardous substances has occurred.

e: Comment incorporated into Section 4.2.

nt No. 5: This paragraph does not match the requirements of 29 CFR 1910.120 (a)(3) and (c)(7)(a) where risk identification includes OSHA PELs and "published exposure levels" defined as the NIOSH Recommended Exposure Limits (RELs) and (if RELs are not available) the ACGIH TLVs. The Plan text cites ACGIH TLVs and OSHA PELs; if these are not available, then the NIOSH RELs. Since the exposure limits may not abe identical from each of these sources it is prudent to use as a compliance goal the more conservative limit from the sources advocated by the standard, or, more conservatively cite the lowest exposure of any recognized published exposure level. For example the NIOSH REL for acetone is 250 ppm whereas the TLV and PEL is 750 ppm. Also worth mentioning may be the AIHA Workplan Environmental Exposure Level Guide (WEEL) since technically it too is a peer-reviewed "published exposure level" though it is neither cited nor excluded from the HAZWOPER standard.

Response: National Institute of Occupational Safety and Health (NIOSH) recommended exposure limits (REL) have been added to Table 5-1. Also, DOE 5480.10A requires a hierarchy of exposure limits using permissible exposure limits (PEL) as a primary reference followed by threshold limit values (TLV). RELs are unmentioned.

Comment No. 6: It would be prudent in the Hazard Assessment Section to describe or reference the "computation formulae" of 29 CFR 1910.1000 (d)(2) for mixed air contaminants. While this standard apparently considers only the TWA exposures, it is worth some consideration that most of the IHSS have multiple contaminants, that some of the contaminants have very low ceilings and STELs, and that some of the cocontaminants at the site may have additive effects (heavy metals) or even synergistic effects (beryllium and fluorine).

Response: The reference formulae has been referenced with respect to Section 6.2 under the topic of personal sampling. As this project represents, the initial investigation of these sites' quantitative information on the nature and extent of contamination is unavailable. The lack of information

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precludes the use of the formula to gage potential risk levels however as data is gathered through sampling efforts it may be used to assess exposure as well as review the adequacy of action limits.

Comment No. 7: The Chemical Exposure Hazard Summary is deficient in not identifying those compounds that may be irritating or corrosive to skin/eye contact. Although the environmental concentrations of the compounds may not be enough to promote these injuries, this information should be included because a layman may think that lacking an "X" in the "Skin Notation" column may exempt an employee from certain PPE when a contact with the contaminant is possible. Skin Notation means only that the compound may be absorbed through the skin/eyes/mucous membranes and be a contributor to an exposure via this route.

Response: An "Irritant/Corrosive" category has been added to the summary.

Comment No. 8: This table is not complete in identifying exposure limits that are less that the full time-weighted average; i.e, "ceiling" (e.g., the CrO_3 0.1 mg/m^3 by the OSHA Z-2 table); or short term exposure limit (STEL) (e.g., Be at 0.025 mg/m^3 for 30 min.); or respirable vs. total dust (e.g. aluminum with 15 mg/m^3 total dust and 5 mg/m^3 respirable faction). Since a short term exposures is more likely under the work conditions than a full-shift exposure, these limits must be included and evaluated along with other potential exposures. Also the table should note compounds that have OSHA established "action limits" for the time weighted averages such as for arsenic at 0.005 mg/m^3 per 29 CFR 1910.1018.

Response: Ceiling, short term exposure limit, and action limits have been added to the table. It should be noted that these limits do not generate any changes to actual field practices because the action levels are already more conservative than the eight-hour time-weighted average.

Comment No. 9: I was not able to find a cadmium cyanide PEL in the Z table. I would assume that it would be the same as for dusts which would be 0.2 mg/m^3, not 0.005 mg/m^3 as stated.

Response: As noted in the above comment, cadmium cyanide is not listed in the Z tables. The PEL is based upon the cadmium component of the compound. The use of this PEL is documented on data obtained on Hazard Line.

Comment No. 10: The OSHA PEL is 2 ppm, not 350 ppm. The ACGIH TLV is 10 ppm, not 350 ppm.

Response: Chloroform as stated in Table 5-1 should read as methyl chloroform. Table 5-1 has been corrected and the PEL and TLV reviewed. The exposure limits remain at 350 parts per million (ppm), respectively.

Comment No. 11: Trichloroethane (CAS 71-55-6) is not included in the 5-1 table although it is mentioned as a site contaminant in Table 5-2.

Uranium is not included in the 5-1 table although it is mentioned as a site contaminant in Table 5-2.

Freon is not included in the 5-1 table although it is mentioned as a site contaminant in Table 5-2.

Tritium is not included in the 5-1 table although it is mentioned as a site contaminant in Table 5-2.

Plutonium is not included in the 5-1 table although it is mentioned as a site contaminant in Table 5-2.

Americium is not included in the 5-1 table although it is mentioned as a site contaminant in Table 5-2.

Response: Trichloroethane (CAS 71-55-6) is listed in Table 5-1 under its chemical synonym methyl chloroform. Trichloroethane has been added in parentheses to eliminate the confusion. Uranium, Freon, tritium, plutonium, and americium have been added as a separate table.

Comment No. 12: Mention is made here that if particulates become suspended in the air that misting shall be used for dust control. This should be tied to a reading on the Miniram to ensure that misting for dust control does occur. At different OUs this may vary given the high toxicity of some compounds and the restrictive ceiling limits and STELs. The addition of a surfactant to the misting water will enhance its dust control properties and should be specified.

Response: The line referencing misting has been revised to reflect the use of misting tied to soil disturbance. Extrapolation of action levels for use with the Mini-ram has not been overlooked but found to be infeasible. Quantitative data on the nature and extent of soil contamination are unavailable. As soil and personal sampling results are received, the action levels in the tables in Appendix A will be updated to reflect the new data IHSS by IHSS.

Comment No. 13: The chemical contaminants are not the only chemicals of concern, there will be chemicals and materials that Jacobs and the subcontractors will bring onto the site as a part of their investigation that must be addressed here. These chemicals and materials include:

benzene - SOP 6.2, P.1
PCB wipe sample solvent (ethanol?)-Section 5.4.3
compressed gases SOP 6.2
acids and bases; standard preservatives for liquid samples

Response: As defined in 29 CFR 1910.120 (b), Safety and Health Program, and 29 CFR 1910.120 (c)(7), Risk Identification, items covered by the employer's health and safety program and training in the employer's Hazard Communication Program need not be duplicated. Although these products are hazardous as defined in 1910.1200, they are not hazardous wastes as defined by the Resource Conservation and Recovery Act nor are they already present on the hazardous waste sites in question. As such, it is appropriate that they be covered under Jacobs' Hazard Communication Program and not repeated in a site risk identification.

Comment No. 14: This paragraph understates the consequences of acetone exposure. Exposures less than 1000 ppm have been found to cause eye, nose and throat irritation (Federal Register, January 19, 1989; vol.54, no. 12; pages 2446-2448); this is significantly different than the H&S Plan that cited dry mouth and throat etc. at greater than 10,000 ppm. It is disingenuous to place the least significant effects of acute exposure first when other symptoms, with which it is grouped at this exposure level, include "coma". Include the NIOSH REL of 250 ppm.

Response: Comment incorporated.

Comment No. 15: The TLV for Cadmium is outdated. It is currently 0.01 mg/m^3 total dust and 0.002 mg/m^3 respirable fraction.

Response: The TLV contained within the HSP has been updated to reflect the changes published in the new American Conference of Government Industrial Hygienists (ACGIH) TLV booklet issued in September of this year.

Comment No. 16: Since the topic header is "Chemicals of Concern", a discussion about aluminum's medicinal applications is irrelevant and potentially misleading. Include here the OSHA PEL of 15 mg/m^3 total and 5 mg/m^3 respirable dust; and the ACGIH TLV of 10 mg/m^3.

Response: Comment incorporated.

Comment No. 17: The toxic effects of "ingestion of large amounts" are not as relevent as the unmentioned inhalation route of exposure which has been linked to pulmonary fibrosis. Delete the sentence "No exposure limits for this compound were noted." The ACGIH TLV is 5 mg/m^3.

Response: Comment incorporated.

Comment No. 18: Subcutaneous, intramuscular, and intraperitoneal routes are not only unlikely exposure routes given the assigned tasks, but most readers of this document will have no idea what they mean even though virtually everyone equates arsenic with "poison." Speaking (relatively) more plainly, the likely routes of exposure will be through inhalation and just possibly ingestion. Health effects of arsenic include corrosive effects to

the skin and mucous membranes, and skin sensitization. The OSHA established "action limit" for the time weighted averages for arsenic of 0.005 mg/m^3, a 0.002 mg/m^3 ceiling, and a 0.010 mg/m^3 PEL as per 29 CFR 1910.1018.

Response: Comment incorporated.

Comment No. 19 Stronger language about the hazards of berylium is suggested. From Fundamentals of Industrial Hygiene, 2nd Ed. (National Safety Council, 1981): "Beryllium is among the most chemically toxic of all elements yet investigated. Acute effects have been brought about in animals with beryllium in quantities in the order of millimicrograms. It has been established that a worker may carry home enough beryllium compound on his clothes to result in illness to some member of his family. Several investigators have demonstrated that the presence of fluorine contributes to the toxic action of beryllium." The authors of this H&S Plan may note that the presence of beryllium and fluoride occurs at several of the IHSS (123.1, 123.2, and 162), and while it is unclear to me whether an exposure to fluoride can act as fluorine does in promoting deleterious health effects from beryllium, it is worth consideration.

The H&S Plan must not mislead a reader into thinking there are not acute health effects. This may be surmised as it is stated that "Inhalation of berylium dusts *may lead to the development of beryllosis...* Additional effects of inhalation include..." The possibility of pneumonitis or hypersensitivity may result from a single acute exposure but the impression left with the reader is that these "additional effects" may result from multiple exposures that develop the effect.

Berylium is a NIOSH occupational carcinogen and has a ceiling of 0.0005 mg/m^3, an OSHA PEL of 0.002 mg/m^3, (not 2 mg/m^3 as stated in the H&S Plan), an OSHA ceiling of 0.005 mg/m^3, an OSHA 30-minute STEL of 0.025 mg/m^3.

Response: Comment incorporated.

Comment No. 20: The first sentence does not seem supported by available evidence; either that skin exposure is a contributor to overall exposure or that contact with metallic cadmium results in eye/skin/mucous membrane irritation. To say "Cadmium is a poison..." is perhaps a too general; to a toxicologist everything is potentially a poison, it is the *dose* that makes it so. Ingestion of cadmium is chronic or acute doses does not typically produce coughing, chest tightness, and substernal pain. The kidneys are most definitely a target organ and they are not discussed. NIOSH recommends that exposure be reduced to the lowest feasible concentration. Include the OSHA PEL and ceiling limit.

Response: Comment incorporated.

Comment No. 21: This compound is not listed in either Tables 5-1 or 5-2. It should be mentioned that this compound generates heat when it comes in contact with water. It is redundant to say that a caustic to living tissue is also an irritant; and it should be mentioned that this irritation can be to the skin, and eyes,... The NIOSH REL is 2 mg/m^3. The OSHA PEL is 5 mg/m^3.

Response: The compound and its synonym are both found on line 29 of Table 5-1. In OU12, IHSS 187 (Table 5-2), lime was used to neutralize sulfuric acid.

Comment No. 22: It is more relevant to mention that carrbon disulfide is absorbed through the skin than the "Intraperitoneal route". Carbon disulfide exposure has also been related to the development of heart disease (the basis of its PEL revision). Dermatitis may result from skin contact. The NIOSH REL is 1 ppm with a skin notation and a short term exposure limit of 10 ppm. The OSHA PEL is incorrectly cited as 20 ppm; it is 4 ppm with a STEL of 12 ppm. The ACGIH TLV is 10 ppm.

Response: Comment incorporated.

Comment No. 23: Reference comment in Beryllium on the statement "Chloroform is a poison.." The statement that it affects "..the body as a whole." is vague. Inhalation may expose the nasopharyngeal mucous membranes to irritation but you could hold your breath until you turned blue and chloroform would still irritate your eyes (conjunctiva). The OSHA PEL is 2 ppm; the ACGIH TLV is 10 ppm, NIOSH sets a 2 ppm limit over a 60 minutes as a short term exposure limit.

Response: Comment incorporated

Comment No. 24: Chromium is known to promote damage to the liver and kidneys. The chromate salts are ACGIH *confirmed* carcinogens. The last sentence is inaccurate; the PEL is not 1 mg/10 m^3 and it is not the most conservative exposure limit. The NIOSH REL is 0.001 mg/m^3 for chromic acid and all Cr (VI) compounds; ACGIH adopted at 0.05 mg Cr (VI)/m^3 for chromic acid and certain water soluble and water insoluble Cr(VI) compounds; OSHA set its PEL ceiling for CrO_3 at 0.1 mg/m^3.

Response: Comment incorporated.

Comment No. 25: Given the extent of corrections necessary for compounds listed in items #14-#24 above, I recommend a review of all the compounds to ensure the exposure limits and principal health effects are complete and accurate.

Response: Comment incorporated. Also the reasons for the standard level as found in the documentation of TLVs were reviewed included where not already present.

Comment No. 26: The first sentence of this paragraph identifies this version as a draft. When will the research on these potential contaminants be completed?

Response: The reference to the version being a draft has been eliminated, and the information provided represents the most current available. As laboratory results from soil sampling efforts become available, the chemicals discovered will be added to applicable portions of Section 5.0 and the Appendix A tables.

Comment No. 27: While I agree that generally that there is a low probability for contact with contaminants, this follows only if we make the assumption that all engineering, PPE, and procedural requirements are rigorously maintained. The assumptions used to "qualify the magnitude of chemical and radiological hazards" misses a critical consideration; many of these IHSS have multiple contaminants of materials with very low exposure thresholds for promoting serious health injury. Dilution and transport by rainwater, volatilization and adhesion to surrounding soils are inconsequential when evaluating the exposure potential for metals, and to suggest these mechanisms will ensure an "extremely low probability of contact" is misleading. Therefor a strategy of reducing exposures to as low as reasonably achievable seems preferable to offering assuasive and unsubstantiated assurances that the aforementioned mechanisms are palliative of the potential exposures and their hazards.

Response: Comment incorporated.

Comment No. 28: Include "generation of airborne dusts".

Response: Comment incorporated.

Comment No. 29: I would either prohibit the use of power washing equipment for the decontamination or require the use of splash protection including face shield.

Response: Decontamination of equipment is to be done with hand-held squeeze bottles, not power sprayers.

Comment No. 30: Include "Noise exposure" as a hazard and "Hearing defenders" as a control.

Response: Comment incorporated.

Comment No. 31: Include "Wear leather gloves".

Response: Comment incorporated

Comment No. 32: Why is there no table of hazards and controls for surface water and sediment sampling? Aren't the personnel conducting radiation surveys, soil-gas surveys, site walkovers, and tank/pipeline inspection subject to the same hazards and in need of the same protection as personnel collecting soil samples?

Response: An additional table has been added to cover surface water and sediment sampling and soil-gas sampling as they represent activities that may result in soil disturbance. Contractor direction for the remaining activities that are considered nonintrusive is to follow existing postings and requirements for the areas. As these are uncontrolled sites with the general employee population passing over on a daily basis, few additional controls are required.

Comment No. 33: The SOP referenced does not meet the requirements of 29 CFR 1910.146 on numerous points (e.g., identification of confined spaces, permitting of confined spaces, duties of attendant and entry supervisor, rescue and emergency services, etc.)

Response: Jacobs concurs with this comment. Because confined space entry is not within the scope of work covered by this plan, the Standard Operating Procedure (SOP) has been withdrawn. Confined space entries will not be made until the HSP is modified and the Jacobs program is updated.

Comment No. 34: The stated goal of the "Hazard communication procedure" does not mention specifically that it is to address *chemical* hazards and does not set requirements for labelling, maintenance of MSDSs, and procedures for handling the releases of hazardous materials. It is also recommended that the specific hazardous substances that Jacobs or its subcontractors may expect to bring onto the site be listed in this Plan and the available MSDSs appended. Contrary to a literal reading of bullet 3 on page 5-57, the Hazard Communication Standard does not encompass hazardous waste (29 CFR 1910.1200 (a)(6).

Response: The stated goal has been revised to ensure that it is understood that the program refers to chemical hazards. The remaining requirements are contained within the Denver Operations, Hazard Communication Program. As such they are not duplicated within the HSP but only referenced: See response on Comment No. 13.

Comment No. 35: The term "action level" should be defined.

Response: The term action level has been defined in the acronym section.

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Comment No. 36: These sentences should have "at least" inserted after the word "taken" since as it reads, 15 minutes must elapse between readings; direct reading instruments should be monitored continuously when such readings occur. These sections should concur with the Section 8.1.2 (P. 8-4; Bullet I) in its requirement for continuous air monitoring when Level C is reached.

Response: Comment incorporated.

Comment No. 37: Chromium and other metals will not be detected by photoionization and the results from personal monitoring may not arrive until weeks after the sampling has been completed. Therefore, language that prohibits the use of colorimetric tubes is not acceptable since there is no other means to tell whether an exposure has occurred.

Response: The intended use of the colorimetric tubes is to determine if vapors from free product are present when the possibility for the product exists. The text has been revised to clarify the issue. Metals however will not be detected by colorimetric tubes either.

Comment No. 38: Why are the action levels for dust monitoring based on nuisance dust? Does this have something to do with the instrument's detection limits in not registering the respirable faction? How is this sufficiently conservative when the PELs and RELs for many compounds are 3 orders of magnitude less, and there is no procedural requirement that these readings be taken in the breathing zone? Is there a SOP on the use of the Miniram?

Response: Data to extrapolate an action level based upon contaminant concentrations is unavailable. To protect employees against overexposure, reliance upon engineering controls and personal protective equipment (PPE) is necessary. In agreement with DOE, a benchmark of 1.5 milligrams per cubic meter (mg/m3) has been set for the action level using Mini-ram readings.

Comment No. 39: Change "may be required" to "will be required" or an employee overexposure may result.

Response: Comment incorporated.

Comment No. 40: It should be clarified as to what is meant by ..."an initial round of five samples... for the contaminants of concern. Does it mean 5 samples for each contaminant of concern at each IHSS? Does it mean 5 samples over the course of the work plan?

Response: The wording has been revised to read five samples for each IHSS where sampling is required.

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Comment No. 41: The ambiguity in excusing the use of the Zone system is troublesome since apparently a few guidelines may suffice to determine conditions when their use is not needed. The Appendix A tables could even make this quite explicit. Otherwise, I see no administrative mechanism that determines who makes this decision to use or not use the zone system.

Response: As stated in the text, the site manager and site health and safety officer will make the determination. The criteria is also listed. No further action is necessary in accordance with the meeting with DOE.

Comment No. 42: The introduction to PPE should make it clear that *engineering controls* and *work practices* shall be instituted to reduce and maintain employee exposure. While this Plan has mentioned misting for dust control several times, I do not think the importance can be overemphasized given the necessity for keeping exposures to hazard-bearing dusts ALARA.

Response: Comment incorporated.

Comment No. 43: Include "upgrading" PPE levels as well as downgrading. Also, is there any reason why a worker may not elect to upgrade his/her own PPE so long as the decision to downgrade always lies with the site HSO?

Response: Comment resolved with no further action necessary per the meeting with the DOE.

Comment No. 44: Paragraph 2 lists surface water/sediment sampling as an activity that should be done "on all sites" in the "base level of protection" and that includes an uncoated Tyvek. Although the next paragraph upgrades to poly or Saranex when free liquids are encountered (and when wouldn't they be during surface water sampling?) imprecise writing makes several readings necessary before reason can be made of it.

The list of PPE in paragraph 2 is different than that listed in Section 8.1.3 although both are D Modified, (difference in requirements for slung respirator, inner latex gloves). Concrete coring/sampling should be performed with leather gloves. Polyvinyl alcohol gloves are costly and their finish dissolves on contact with water, other (Silvershield, Viton) less expensive and more durable construction are available for sampling PCB contaminated soils. Why does this "base level of protection" not mention eye protection, splash protection when sampling liquids, hardtoes in boots, or disposable boot covers?

Response: Comment incorporated.

Comment No. 45: "Polycoated Tyvek or Saranex are the only additional protection mentioned when action levels (PELs and TLVs) are detected. Why aren't Miniram readings considered here for upgrading when dust action levels are exceeded?

Response: Personnel are already in Tyvek as a base level of protection.

Comment No. 46: I disagree that outer disposable boots should be optional; given the uncertainty about contaminant levels and the extreme toxicity of these contaminants I would think them essential for any individual entering the exclusion zone.

The respirator type (full face) and cartridge type should be specified.

Response: Jacobs will use rubber boots as standard footwear for invasive activities. Use of these boots will allow decontamination without the waste generation associated with the use of disposable covers. Respirators are full face MSA Ultra-twins (the only type Jacobs uses) and the cartridge type is specified by IHSS in Appendix A.

Comment No. 47: The Tyvek worksuit should be a minimum protection for anyone in the exclusion zone based on the high toxicity of known or suspected contaminants and the possibility that a contamination event may result in personnel leaving the controlled area wearing contaminated clothing, carrying contamination off the site and possibly home to their families. Boots should have hard toes and shanks (specify ANSI). Safety glasses should be required to have side-shields and meet ANSI specifications. Define what is intended by requiring escape respirators, i.e., do you want the 5 minute cylinder with mask or hood? Include personal dosimeter badge.

Response: Tyvek is the minimum protection for anyone in a controlled area, exclusion zone, or during invasive activities. It should also be noted that many of the sites to be investigated are uncontrolled areas where street clothes are normally worn.

Comment No. 48: The wording should be "Meeting all of these criteria..." not "Meeting any..". Otherwise there would have to be "hazardous air pollutants (sic)" and contact potential before an upgrade is allowed.

Response: Comment incorporated.

Comment No. 49: First aid to an injured worker should not be specified as the third most important action. Evacuation may not even be necessary in all circumstances and the paragraph is unclear about whether the injured is moved as a part of the evacuation or not.

Response: Comment incorporated.

Less Serious Errors and Omissions

Comment No. 1: Although the full title is not listed in the organization chart, is the Corporate Health and Safety Officer (P.1) Terry Briggs? Who then is the Corporate Health and Safety Manager? How do the Corporate Health and Safety Officer and the Corporate Health and Safety Manager relate to one another in terms of responsibilities and authority? There is apparently a Health and Safety Administrator (P. 4-3) but the title and responsibilities are not mentioned in Section 2.

Response: Both the Corporate Health and Safety Officer and the Corporate Health and Safety Manager positions are staffed by Terry Briggs. The term Corporate Health and Safety Officer has been eliminated to reduce confusion. The Corporate Health and Safety Administrator is a staff member of the Corporate Health and Safety Manager and accepts direction from him in day- to-day operations involving corporate support.

Comment No. 2: Replace the "...or..." with an "...and..." so the phrase reads "...all Jacobs' employees and its subcontractors...".

Response: Comment incorporated.

Comment No. 3: Site Manager is responsible for verifying training/medical surveillance in this section but the responsibility was not mentioned in Section 2.1.5. Are the employees required to carry the Wallet Cardard and Summary Sheet? Does this record keeping include subcontractors to?

Response: The responsibility has been added to Section 2.1.5. All Jacobs employees will carry wallet cards when onsite, and copies of the training records and summaries will be maintained in project files at support trailers. Training records of all subcontractors will be verified and copies maintained onsite during the project.

Comment No. 4: Asbestos is no longer a product constituent of cement mixes.

Response: While no longer a product constituent of current mixes, this project requires the sawing or coring of existing cement of varying ages.

Comment No. 5: Either describe or append the acceptable limits for radiation (DOE 5480.11).

Response: Derived air concentrations have been added as Table 5-3.

Comment No. 6: Tank and pipeline inspections may not be low hazard tasks.

Response: Tank and pipeline inspections as covered by the scope of this work involve the visual observation of existing structures for planning purposes. No nondestructive testing, pressure, or destructive testing is planned in this phase.

Comment No. 7: It is unclear to me how a drill rig will be employed in this work plan.

Response: Drill rigs will not be employed in this plan.

Comment No. 8: SOPs for drilling not included in my copy of this Plan.

Response: See response to Comment No. 7.

Comment No. 9: Reference your Hearing Conservation Program required by 29 CFR 1910.95 (c).

Response: Comment incorporated.

Comment No. 10: Groundwater will not be sampled in this work plan; splash hazard most likely during decontamination activities.

Response: Comment incorporated. Splashes are also possible during surface water sampling.

Comment No. 11: Freezing of the extremeties is not necessarily a step when succumbing to hypothermia. Many hypothermia fatalities have occurred at temperatures 15-20 degrees above freezing. The unmentioned and most critical factor to hypothermia prevention is not "freezing or rapidly dropping temperatures"; it is the loss of body core heat due to wet skin or contact of the skin with wet clothing. The body can not generate the heat necessary to balance the loss of heat from the skin as heat is rapidly drawn off by the conductive properties of the water and the high energy penalty of evaporating moisture off the skin. Therefore, a remedy of a backup set of warm dry clothing is recommended, or ensuring workers do not perform physically exerting tasks in a warm area before they exit to a cold environment in order to mitigate perspiration which promotes heat loss.

Response: Comment incorporated.

Comment No. 12: The sun emits ultraviolet radiation (UV) most of which is at a wavelength of "light" not visible to the human eye, and none of which is emitted as "heat".

Response: Comment incorporated.

Comment No. 13: Lockout/tagout must be explained and implemented not only in terms of "hazardous sources of energy", because this does not seem to encompass the "servicing and maintenance of machines and equipment in which the *unexpected* energization or start up...could cause injury" (20 CFR 1910.147(a)(1). Jacobs SOP 8.9 was not included in my copy of this Plan.

Response: Comment incorporated.

Comment No. 14: I would recommend that when checking clothing to pay attention to the inside of the seams and cuffs. Also if clothing can be worn so socks are pulled tightly over pants cuffs, jacket hoods kept up when walking tall brush, etc., the opportunities for ticks to penetrate the clothing boundaries are reduced. Personnel should never approach or pick up a habitat mammal on the site. Bubonic plague has been reported in ground squirrels within 50 air miles of this site at several locations.

Response: Comment incorporated.

Comment No. 15: Instrument calibration form not included in Appendix C.

Response: Comment incorporated.

Comment No. 16: Why do you specify the 11.7 eV lamp? Granted that the trichloroethane, carbon tetrachloride, and chloroform do not respond to the 10.2 (eV) lamp, but the problems associated with cleaning the 11.7 lamp window is that either Freon or a chlorinated solvent are required; if water comes in contact with the lamp window the instrument will be damaged. An OVA will detect the compounds listed above and is a practical direct reading instrument for field use.

Response: The 11.7 eV lamp provides the greatest coverage of contaminants and the Jacobs technicians are the most familiar and comfortable with photoionization detectors.

Comment No. 17: Append SOP 9.4 to this Plan.

Response: Comment incorporated.

Comment No. 18: Coring of asphalt and concrete will generate noise.

Response: Comment incorporated.

Comment No. 19: Require MSDSs be kept on site.

Response: It is already required by Sections 5.2.2 and 5.7.

Comment No. 20: Is there a rationale for describing activities in Section 3.6 as all being "nonintrusive" then designating some of these activities in Section 8.1.1 as being either "invasive" or "noninvasive"?

Response: The work plans provided to Jacobs and the statement of work label all work to be done as nonintrusive. Within this plan a distinction has been made to note those activities where disturbance of contamination is possible.

Comment No. 21: It is probably not that important to have intrinsically safe radios since mitigation of fire hazard is a low priority in this Plan as proposed.

Response: EG&G provides intrinsically safe radios to subcontractors.

Comment No. 22: The acronyms in the "Notes" table (e.g., GMCH,) need to be defined.

Response: GMCH is the actual designation of the MSA respirator cartridge to be used. It is not an acronym.

Comment No. 23: There are two medical surveillance procedures here. Are both in effect? Do the more stringent provisions of each apply? Will the ACGIH Biological Exposure Indices be used for arsenic, cadmium, carbon disulfide and chromium?

Response: Baselines are obtained as a matter of course during initial physical. Interim physicals will be used for personnel after the baselines are obtained. In the event of a possible overexposure or display of other symptoms, subsequent tests may be used to compare against the baselines. No further biological monitoring is planned.

Comment No. 24: Please ensure that if a procedure, SOP etc. (whether Jacobs, EG&G, or DOE order) if referenced in this Plan is either in the Plan as an Appendix, or required to be on the site in some other form.

An index for this Appendix would be handy.

Response: Copies of the Jacobs health and safety manuals are maintained onsite at all times.

Comment No. 25: I know of no required permit issued by OSHA for excavations.

Response: Excavation permits are required by California Occupational Safety and Health Administration. As this SOP is used in that state, provisions for the permit are included.

Comment No. 26: Typically the owners and the utility owners are notified and they are responsible for locating the underground utilities. The requirement that the shoring plans be designed/approved by a California engineer seems a bit restrictive. Most of the even numbered pages were missing from my copy of Appendix C making this review incomplete.

Response: Jacobs has taken additional steps with respect to utility clearance that have been shown to be necessary based on experience. Although properly cleared by owners, utilities have still been encountered. This has been attributed to the lack of up-to-date utility maps or "redlines," clay pipes, and untoned polyvinyl chloride piping, among other things.

As explained in the response to Comment No. 25, these procedures are used in California as well. When the shoring is performed in the State of California a registered PE is used; otherwise a Jacobs trained competent person fulfills the role.

Typographical Errors

Comment Nos. 1 through 9

All comments have been incorporated.

Sincerely
JACOBS ENGINEERING GROUP INC.
Farrel V Hobb for KM

Kent Mahanna
Health and Safety Coordinator

cc: B. Thatcher, DOE
F. Hobbs, Jacobs
Project Files