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26 August 2010

CAPT Tim Radtke, CIH  
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Office of Occupational Health and Safety  
755 Parfet Street  
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CAPT Radtke:

I have enclosed a report of exposure assessments for Klamath Falls Resource Office as part of the DOI Exposure Assessment and Medical Surveillance Inclusion project. In the report you will find two attachments and guidance for reading and interpreting assessment results. One attachment presents the processes, tasks, and agents that were evaluated during the 16 August 2010 on-site visit with details of the associated exposure profiles that were developed. The other provides a health risk-based prioritized summary list of process-task-agent groups for control and further information gathering.

An Access database containing complete data and supporting documentation is available for download at [www.BleicherCIH.com/DoleA4TR.html](http://www.BleicherCIH.com/DoleA4TR.html) (please note that the page address is case sensitive). This database file will be updated periodically as assessments and profiles are completed for additional facilities.

Please do not hesitate to contact me if you have any questions.

Sincerely,

David P. Bleicher, CIH

Enclosure: Klamath Falls Resource Office Occupational Exposure Assessment

Klamath Falls Resource Office  
Occupational Exposure Assessment and Medical Surveillance Inclusion  
For  
Department of Interior, Safety Council/Office of Health and Safety  
On-site: 16 August 2010

Exposure assessments have been conducted as a part of the Department of Interior's Exposure Assessment and Medical Surveillance Inclusion Determination initiative. The objective of this effort is to document work processes at DOI facilities, describe the individual tasks associated with those processes, identify hazardous agents that are used or generated during the task, and characterize employee exposure to those agents. The ultimate goal is to identify similarly exposed groups (SEGs) within and between bureaus in order to facilitate exposure management requirements including exposure control, validation of medical surveillance, and prioritized use of limited occupational health resources.

*Methods.*

Exposure assessments were conducted following the strategy set forth by the American Industrial Hygiene Association's Exposure Assessment Strategies Committee for assessing and managing occupational exposures<sup>1</sup>.

An on-site visit to Klamath Falls Resource Office was conducted on 16 August 2010 by David P. Bleicher, CIH to characterize selected processes and collect information needed to develop task-agent exposure profiles. A number of methods were available and used to gather this information. Characterization of processes, tasks, conditions and controls, and agent identification was obtained through observation of work sites and facilities, documentation of procedures, material safety data sheets, and importantly, worker interview. Data useful for estimating exposure was obtained through screening and short term measurement, historical sampling data, mathematical modeling, and the scientific literature.

Two reports are provided for this facility (Attachments A and B). One presents the processes, tasks, and agents that were evaluated during the site visit along with details of the associated exposure profile. The other is a health risk-based prioritized summary list of process-task-agent groups for control and further information gathering.

*Task-Agent Exposure Profile Detail Report.*

Task-agent exposure profiles are based on observation and employee description of processes. Due to the nature of many DOI missions, processes and tasks can be highly variable—task duration, frequency, and operating conditions can differ from one iteration to another. Therefore, process and task characterizations were frequently, and necessarily, reported as “typical” with a range of conditions described. Judgments about worker exposure are based on the tasks as presented in this report. When actual processes or the conditions under which they are carried out differ from those recorded, the exposure profile and classification should not be generalized without appropriate consideration of variables.

*Reading the Report.*

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<sup>1</sup> Bullock, Wm.H. and J.S.Ignacio, Eds. 2006. A Strategy for Assessing and Managing Occupational Exposures, 3<sup>rd</sup>. AIHA Press, Fairfax.

The Task-Agent Exposure Profile Detail Report is arranged in hierarchical fashion by Division or Project, Process, Task, and Agent. Process entries include a brief description of the process and when appropriate, unique operating conditions. Task entries include a brief characterization of the task, a description of any controls in place, the duration and frequency of occurrence, and appropriate recommendations. It should be noted that many task characterizations and agent exposure profiles will immediately suggest rather obvious recommendations. Some of these have been included in the report. However, in many cases it would not be appropriate to make definitive control recommendations without more careful consideration of control strategies and factors that would affect their efficacy (e.g. design, economic, and cultural factors) which is beyond the scope of the exposure assessment project.

*Exposure Profile.* Information used to develop the exposure profile is found for each Agent under a Task. It is important to understand that the exposure profile accounts for engineered and administrative controls and reflects potential worker exposure in the absence of personal protective equipment such as respirators.

- Exposure Category: Exposures have been categorized as Acceptable, Unacceptable, or Uncertain.
- OEL: The Occupational Exposure Limit or OEL is the threshold value used as a standard for comparison with the exposure estimate. OELs may describe full shift or short-term acceptable or unacceptable exposure limits.
- Exposure Rating & Exposure Estimate: When possible the Exposure Rating is based on quantitative data which yields an Exposure Estimate. In practice, very little quantitative information is available to support a judgment. In the absence of strong quantitative data, it is often practical and reasonable to categorize an exposure as acceptable, unacceptable, or uncertain based on qualitative or semi-quantitative information. However, in these cases it is difficult to assign intermediate exposure ratings as a fraction of the OEL, therefore an exposure rating of 4 is assigned to clearly unacceptable exposures and a rating of 1 for those that are clearly acceptable.
- Health Effects Rating: The Health Effects Rating reflects both the severity and permanence of the health impacts of an unacceptable exposure.
- Uncertainty Rating: The Uncertainty Rating provides an indicator of the level of certainty associated with the exposure profile. For example; exposure estimates based on definitive monitoring studies would be highly certain while profiles based on screening measurement, mathematical modeling, data from similar activities, or qualitative judgment may add degrees of uncertainty. Other factors that may affect the industrial hygienist's assignment of an uncertainty rating are inadequate understanding of health impacts by scientific community and excessive generalization of the task activity or conditions during the characterization process.
- Basis & Discussion: The Basis for the estimated exposure, its assignment to an exposure category, and the factors affecting certainty is given. A brief Discussion of available information and factors leading to judgments about the exposure profile is also provided.
- Risk/Control Priority: A Risk/Control Priority is calculated as the product of the Health Effects Rating and the Exposure Rating. Ratings range from 0 for the lowest risk exposures to a high of 16.
- FIG Priority: When uncertainty exists in the exposure profile, further information gathering may be required to resolve it. FIG Priority is calculated as the product of the Risk/Control Priority and the Uncertainty Rating. Both the Risk/Control Priority and the FIG Priority values may be used to more efficiently direct resources to control exposures and resolve exposure questions. FIG priority ratings range from a low of 0 to a high of 32.

*Medical Surveillance.* The exposure profile provides validation of, or indicates justification for, medical surveillance programs. In the report, medical surveillance is Justifiable when the exposure category is unacceptable or uncertain. Note that justifiable means simply that an unacceptable (or uncertain) exposure is identified. It does not suggest that medical surveillance is required, needed or even useful. On the other hand, some exposures are designated as Triggered or Critical Exposures. For unacceptable or uncertain exposure to some agents, medical surveillance may be triggered or required by regulation. A critical exposure refers to unacceptable or uncertain exposure to an agent which may pose very severe and irreversible health effects if not controlled. Examples include potent human carcinogens.

David P. Bleicher, CIH

26 August 2010

Attachment A: Task-Agent Exposure Profile Detail Report

Attachment B: Health Risk and Further Information Gathering Priorities Report

# Task-Agent Exposure Profile Detail Report

## Klamath Falls Resource Office

### Maintenance

**Process:** Fabricate Cowboy Gate

Cowboy Gates are fabricated of galvanized pipe, rebar, and barbed wire. The process requires cutting galvanized pipe with the bandsaw in the shop, grinding away galvanizing coating, cutting rebar with an oxy-acetylene cutting torch, and MIG welding rebar.

**Operating Conditions:**

Work is mostly conducted in the shop with ceiling exhaust ventilation.

**Task:** Cut Galvanized Pipe, Band Saw

**Frequency:** Single Event

Galvanized pipe is cut using the band saw. Texaco Soluble Oil-D is used as a cutting fluid and coolant. After cut is set up and initiated, it does not require tending. Cuts require approximately 30 seconds. Three to four cuts are required.

**Duration:** Incidental

**Controls:**

**Recommendation**

**AGENT** Zinc (Zn)

**OEL:** 5 mg/m3

**Exposure Estimate:** 0 mg/m3

**Health Effects Rating:** 2 Severe, reversible health effects of concern

**Exposure Rating:** 1 (<10% OEL; 95th %tile <0.1 OEL)

**Exposure Category:** Acceptable

**Uncertainty:** 0 Certain

**Risk/Control Priority:** 2

**Basis:** Qualitative Judgement

**FIG Priority:** 0

**Discussion:** Cuts are made using slow saw blade speeds and are water cooled. Metal particulate is expected to be coarse and not pose an inhalation risk. Slow speed of blade is not expected to create coolant mist.

**Medical Surveillance**

**Justifiable:** no

**Triggered or Critical Exposure:** no

**Reference:**

**Task:** Grind Galvanized Coating

**Frequency:**

Galvanized coating is removed from pipe in the way of welds using a 4 " angle grinder. Sixteen welds will be made per gate.

**Duration:** <1/2 hour

**Controls:**

Ceiling exhaust fan.

**Recommendation**

**AGENT** Noise

OEL: 85 dBA

Exposure Estimate:  dBAHealth Effects Rating:  Irreversible health effects of concernExposure Rating:  (>10% OEL; 95th %tile > OEL)Exposure Category: Uncertainty:  UncertainRisk/Control Priority: 

Basis: Qualitative Judgement

FIG Priority: 

Discussion: Sound level measurements were not available for this task, however, noise levels greater than 90 dBA and as high 100 dBA as are anticipated for this kind of tool and work.

**Medical Surveillance**

Justifiable: yes

Triggered or Critical Exposure: yes

Reference: 29 CFR 1010.95

**AGENT** Zinc (Zn)OEL:  mg/m3Exposure Estimate:  mg/m3Health Effects Rating:  Severe, reversible health effects of concernExposure Rating:  (<10% OEL; 95th %tile <0.1 OEL)Exposure Category: Uncertainty:  CertainRisk/Control Priority: 

Basis: Qualitative Judgement

FIG Priority: 

Discussion: Task involves high speed, but coarse grinding. Particulate size not determined, but expected to have a relatively low percentage respirable fraction. Actual grinding duration is short.

**Medical Surveillance**

Justifiable: no

Triggered or Critical Exposure: no

Reference:

**Task:** Weld Steel, MIG

Frequency:

Weld rebar to pipe using MIG process. One gate requires 16 welds, each requiring approximately 1 minute.

Duration: &lt;1/2 hour

Controls:

Recommendation

**AGENT** Welding fume, NOS

OEL: 5 mg/m3

Exposure Estimate:  mg/m3Health Effects Rating:  Reversible health effects of concernExposure Rating:  (<10% OEL; 95th %tile <0.1 OEL)Exposure Category: Uncertainty:  CertainRisk/Control Priority: 

Basis: Qualitative Judgement

FIG Priority: 

Discussion: TWA and STEL not expected to be exceeded based on short duration of task.

**Medical Surveillance**

Justifiable: no

Triggered or Critical Exposure: no

Reference:

**AGENT** Zinc oxide fume

OEL: 5 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 2 Severe, reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 2

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: Residual zinc may remain after grinding. Depending on the completeness of removal of the galvanized coating, zinc oxid fume generation is expected to be negligible.

Medical Surveillance

Justifiable: no

Triggered or Critical Exposure no

Reference:

### Process: Gate Fabrication

Road closure gates are fabricated, typically of 5 inch diameter schedule 80 steel pipe. Process involves use of plasma cutter, oxy-acetylene torch or bandsaw cutting; grinding; and welding by SMAW or MIG. One gate requires about 4 days to complete. Shifts are 10 hours. Multiple tasks may occur throughout the day. Seven gates were completed in 2010.

#### Operating Conditions:

Cutting and welding are conducted in the workshop. Overhead exhaust ventilation available. Work may occur summer or winter.

### Task: Cut Steel Pipe, Band Saw

Frequency: Daily

Approximately 5 cuts are made using the band saw during the course of a typical day. Texaco Soluble Oil-D is used as a cutting fluid and coolant. After cut is set up and initiated, it does not require tending. Cuts require approximately 30 seconds.

Duration: Incidental

#### Controls:

#### Recommendation

**AGENT** Particulates, NOS

OEL: 5 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 1 Reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 1

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: Cuts are made using slow saw blade speeds and are water cooled. Metal particulate is expected to be coarse and not pose an inhalation risk. Slow speed of blade is not expected to create coolant mist.

Medical Surveillance

Justifiable: no

Triggered or Critical Exposure no

Reference:

**Task:** Cut Steel Pipe, Oxy-acetylene Torch

**Frequency:** Daily

An oxy-acetylene cutting torch is used to cut and shape pipe and 5 inch angle iron. Cuts are made periodically throughout a 4 day period. A single cut may require less than a minute. Three to five cuts may be made in a typical day.

**Duration:** Incidental

**Controls:**

Cutting is conducted in the workshop or at field sites. Overhead exhaust ventilation available. Work may occur summer or winter.

**Recommendation**

**AGENT** Welding fume, NOS

**OEL:** 5 mg/m3

**Exposure Estimate:** mg/m3

**Health Effects Rating:** 1 Reversible health effects of concern

**Exposure Rating:** 1 (<10% OEL; 95th %tile <0.1 OEL)

**Exposure Category:** Acceptable

**Uncertainty:** 0 Certain

**Risk/Control Priority:** 1

**Basis:** Qualitative Judgement

**FIG Priority:** 0

**Discussion:** Limited number of cuts of short duration are made during an extended shift. Other tasks required for this process will contribute to agent exposure.

**Medical Surveillance**

**Justifiable:** no

**Triggered or Critical Exposure:** no

**Reference:**

**Task:** Cut Steel Pipe, Plasma Cutter

**Frequency:** Daily

A plasma cutter is used to cut and shape pipe and 5 inch angle iron. Cuts are made periodically throughout a 4 day period. A single cut may require less than a minute. Ten to 12 cuts may be made per day.

**Duration:** <1/2 hour

**Controls:**

Work is conducted only in the shop. A ceiling exhaust fan and a local exhaust system for woodworking equipment are operated during this task. Local exhaust is not available for this process.

**Recommendation**

**AGENT** Welding fume, NOS

**OEL:** 5 mg/m3

**Exposure Estimate:** mg/m3

**Health Effects Rating:** 1 Reversible health effects of concern

**Exposure Rating:** 1 (<10% OEL; 95th %tile <0.1 OEL)

**Exposure Category:** Acceptable

**Uncertainty:** 0 Certain

**Risk/Control Priority:** 1

**Basis:** Qualitative Judgement

**FIG Priority:** 0

**Discussion:** Limited number of cuts of short duration are made during an extended shift. Other tasks required for this process will contribute to agent exposure.

**Medical Surveillance**

**Justifiable:** no

**Triggered or Critical Exposure:** no

**Reference:**

**Task:** Weld Steel, MIG, In Shop,

**Frequency:** Daily

Approximately 15 welds are made during a work shift, with each weld requiring approximately 1-2 minutes.

**Duration:** <1/2 hour

**Controls:**

Hearing protection is used primarily for grinding while in the shop.

**Recommendation**

**AGENT** Welding fume, NOS

OEL: 5

Exposure Estimate:

Health Effects Rating: 1 Reversible health effects of concern

Exposure Rating: 1 (&lt;10% OEL; 95th %tile &lt;0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 1

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: A limited number of welds are made during an extended shift. Other tasks required for this process will contribute to agent exposure.

**Medical Surveillance**

Justifiable: no

Triggered or Critical Exposure: no

Reference:

**Task:** Weld Steel, Shielded Metal Arc.

Frequency: Single Event

Gate fittings are welded in the field using SMAW with 7018 rod. Task includes attachment of metal key boxes to gate posts. Approximately 10 welds are made over a three hour period. The task may require additional cutting and fitting with oxy-acetylene torch. This task is completed once per gate ("hanging the gate"). (Rod is Pinnacle Alloys AWS A5.18:Er70S-S for use with carbon steel stainless, nickel, and copper alloys and aluminum).

Duration: 1 - 4 hours

**Controls:**

All work is conducted outdoors.

**Recommendation****AGENT** Welding fume, NOS

OEL: 5 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 1 Reversible health effects of concern

Exposure Rating: 1 (&lt;10% OEL; 95th %tile &lt;0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 1

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: A limited number of welds are made over the 3 hour task duration. All work is conducted outdoors.

**Medical Surveillance**

Justifiable: no

Triggered or Critical Exposure: no

Reference:

**Process:** Mix and Pour Concrete

Redimix concrete is mixed and poured to set posts and construct pads for drinking fountains and similar purposes. Drinking fountain pads (3 X 3 ft) were described as typical of the scale of jobs conducted. Up to 10 bags per job is typical. Concrete is mixed in an electric-powered mixer in batches of 2-3 bags. Concrete is skreed manually. The following statistics were provided to indicate frequency, duration and quantity of material used: Set posts--6/day and 3 bag per hole; 7 gates per year. Six small pads were constructed in 2009, size-- 3x3 ft to 6x6 ft; in 2010 only one was constructed. Mixer is powered by a truck mounted welder-generator.

**Operating Conditions:**

**Task:** Mix Concrete

Frequency:

Concrete is mixed in an electric-powered mixer in batches of 2-3 bags. Concrete is skreed manually. A 3 x 3 ft pour requires approximately 2 hours. Two pads may be completed per day.

Duration: 1 - 4 hours

Controls:

Recommendation

**AGENT** Portland cement

OEL: 5 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 2 Severe, reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 2

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: PEL and REL are 5 mg/m3 respirable, TLV is 1 mg/m3 respirable. Task is conducted infrequently and for short durations. OELs are not expected to be exceeded during this task. Dry portland cement presents less of a caustic skin exposure hazard than wet cement.

Medical Surveillance

Justifiable: no

Triggered or Critical Exposure: no

Reference:

**Task:** Pour and Finish Concrete

Frequency:

Up to 10 bags of concrete may be poured per 3 x 3 ft pour. Two pours may be completed in a day. Surface is skreed manually.

Duration: 1 - 4 hours

Controls:

Recommendation

**AGENT** Portland cement

OEL: 5 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 2 Severe, reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 2

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: Wet portland cement is caustic, abrasive, and will absorb water from the skin. Deep and severe burns can result from prolonged contact. Dermatitis may occur but considering the short duration of projects it is expected to be mild.

Medical Surveillance

Justifiable: no

Triggered or Critical Exposure: no

Reference:

**Process:** Modify/Retrofit ATV Trailers

ATV trailer loading ramps are repaired or modified. This process may require removal of paint by grinding; cutting and welding angle iron, flat iron, or tubing; and priming and painting with aerosol products. Process may require all or several tasks over a period of 1 week, or may require as little as one hour.

Operating Conditions:

Metal is cut in the shop area. All other work is conducted in the warehouse. Process is primarily conducted during winter season.

**Task:** Apply Paint

Frequency:

Apply aerosol paint. Product is Eco Sure High Solids Enamel A-A-2787.

Duration: <1/2 hour

**Controls:**

Work is conducted In the warehose, typically in winter. Overhead fan is operatin. Bay door may or not be open.

**Recommendation**

**AGENT** Acetone

OEL: 750 ppm

Exposure Estimate: 60 ppm

Health Effects Rating: 2 Severe, reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 2

Basis: Mathematical Modeling

FIG Priority: 0

**Discussion:** Product contains 28% acetone. Maximum of 11 oz of product is used over a period of approximately 1/2 hour. OEL is ACGIH STEL. Box model utilizing reported maximum quantity and duration of the task along with highly uncertain assumptions of volume and air flow within the space yields a conservatively estimated concentration potential of 60 ppm over the duration of the task. Note that combined effects of multiple agents contained in the product which have similar health effects and target organs is not accounted for in this profile.

**Medical Surveillance** Justifiable: no  
Triggered or Critical Exposure no  
Reference:

**Task:** Apply Primer

Frequency:

Apply aerosol primer. Primer is Skilcraft SoSure A-A-1551 General Purpose Light Gray Primer Coating, NSN 8010-00-616-9181.

Duration: <1/2 hour

**Controls:**

Work is conducted In the warehose, typically in winter. Overhead exhaust fan is operated. Bay door may or not be open.

**Recommendation**

**AGENT** Acetone

OEL: 750 ppm

Exposure Estimate: 7.2 ppm

Health Effects Rating: 2 Severe, reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 1 Uncertain

Risk/Control Priority: 2

Basis: Mathematical Modeling

FIG Priority: 2

**Discussion:** Product contains 12% acetone. Maximum of 11 oz of product is used over a period of approximately 1/2 hour. OEL is ACGIH STEL. Box model utilizing reported maximum quantity and duration of the task along with highly uncertain assumptions of volume and air flow within the space yields a conservatively estimated concentration potential of 7.2 ppm over the duration of the task. Note that combined effects of multiple agents contained in the product which have similar health effects and target organs is not accounted for in this profile.

**Medical Surveillance** Justifiable: no  
Triggered or Critical Exposure no  
Reference:

**AGENT** Propane

OEL: 1000 ppm

Exposure Estimate: 1 ppm

Health Effects Rating: 1 Reversible health effects of concern

Exposure Rating: 1 (&lt;10% OEL; 95th %tile &lt;0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 1

Basis: Qualitative Judgement

FIG Priority: 0

**Discussion:** Product contains 19% propane that will be released as a gas. Maximum of 11 oz of product is used over a period of approximately 1/2 hour. OEL is TWA and is not expected to be exceeded given the quantity of agent used. Note that combined effects of multiple agents contained in the product which have similar health effects and target organs is not accounted for in this profile.

**Medical Surveillance**

Justifiable: no

Triggered or Critical Exposure: no

Reference:

**AGENT** Toluene

OEL: 20 ppm

Exposure Estimate: 5 ppm

Health Effects Rating: 2 Severe, reversible health effects of concern

Exposure Rating: 2 (10-50% OEL; 95th %tile 0.1-0.5 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 4

Basis: Mathematical Modeling

FIG Priority: 0

**Discussion:** Product contains 12% toluene. Maximum of 11 oz of product is used over a period of approximately 1/2 hour. OEL is TLV-TWA (OSHA Ceiling = 300 ppm). Box model utilizing reported maximum quantity and duration of the task along with highly uncertain assumptions of volume and air flow within the space yields a conservatively estimated concentration potential of 5 ppm over the duration of the task. Note that combined effects of multiple agents contained in the product which have similar health effects and target organs is not accounted for in this profile.

**Medical Surveillance**

Justifiable: no

Triggered or Critical Exposure: no

Reference:

**AGENT** VM&P Naphtha

OEL: 350 ppm

Exposure Estimate: 4 ppm

Health Effects Rating: 1 Reversible health effects of concern

Exposure Rating: 1 (&lt;10% OEL; 95th %tile &lt;0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 1

Basis: Mathematical Modeling

FIG Priority: 0

**Discussion:** Product contains 16% V M & P Naphtha. Maximum of 11 oz of product is used over a period of approximately 1/2 hour. OEL is ACGIH REL-TWA (Ceiling = 1800 ppm). Box model utilizing reported maximum quantity and duration of the task along with highly uncertain assumptions of volume and air flow within the space yields a conservatively estimated concentration potential of approximately 4 ppm over the duration of the task. Note that combined effects of multiple agents contained in the product which have similar health effects and target organs is not accounted for in this profile.

**Medical Surveillance**

Justifiable: no

Triggered or Critical Exposure: no

Reference:

**Task:** Cut Steel, Plasma Cutter

Frequency:

Use plasma cutter either in the warehouse or in the shop. Number of cuts highly variable depending on the project.

Duration:

**Controls:**

Metal is cut in the shop area or warehouse. Both spaces are equipped with ceiling mounted exhaust ventilation.

**Recommendation**

**AGENT** Welding fume, NOS

OEL: 5 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 1 Reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 1

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: Limited number of cuts of short duration are made during an extended shift. Other tasks required for this process will contribute to agent exposure.

<b>Medical Surveillance</b>	Justifiable: no
Triggered or Critical Exposure	no
Reference:	

**Task:** Grinding

Frequency: Single Event

Paint is removed from trailer parts using an angle grinder. Frequency and duration are variable, but may require 1 to 5 minutes.

Duration: Incidental

**Controls:**

Grinding occurs in the warehouse with the overhead door reportedly open at least 1-2 feet and with an overhead exhaust fan running.

**Recommendation**

**AGENT** Noise

OEL: 85 dBA

Exposure Estimate: dBA

Health Effects Rating: 3 Irreversible health effects of concern

Exposure Rating: 2 (10-50% OEL; 95th %tile 0.1-0.5 OEL)

Exposure Category: Acceptable

Uncertainty: 1 Uncertain

Risk/Control Priority: 6

Basis: Qualitative Judgement

FIG Priority: 6

Discussion: Sound level measurements were not available for this task, however, noise levels greater than 90 dBA and as high 100 dBA as are anticipated for this kind of tool and work. Reported duration of this task is 5 minutes or less. At 100 dBA, the reference duration for 100% dose is 15 minutes.

<b>Medical Surveillance</b>	Justifiable: no
Triggered or Critical Exposure	yes
Reference:	29 CFR 1010.95

**AGENT** Particulates, NOS

OEL: 5 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 1 Reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 1

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: OEL for particulates is not expected to be exceeded based on reported very short duration of the task.

Medical Surveillance Justifiable: no  
Triggered or Critical Exposure no  
Reference:

**Task:** Welding steel, MIG

Frequency:

Weld steel using MIG process. The number of cuts is variable depending on scope of the project.

Duration: <1/2 hour

Controls:

Recommendation

**AGENT** Welding fume, NOS

OEL: 5 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 1 Reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 1

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: A limited number of welds are made during an extended shift. Other tasks required for this process will contribute to agent exposure.

Medical Surveillance Justifiable: no  
Triggered or Critical Exposure no  
Reference:

**Process:** Operate Bobcat

A Bobcat 865 is with a variety of attachments to accomplish a number of construction and maintenance functions. The equipment has a fully enclosed cab, with ac and heat, and coarse, not HEPA, filtration. The cab has been sealed with foam sealer and duct tape. Mowing weeds is very dusty.

Operating Conditions:

**Task:** Mow Weeds

Frequency: Daily

The Bobcat with brush mower attachment is used to mow vegetation on dikes at Wood River Wetlands, along roadways, and at the tree cooler facility. Frequency and duration are variable but may require full shifts for 2 to 5 days per year.

Duration: 4 - 8 hours

Controls:

Equipment has fully enclosed cab, with ac and heat, and coarse filtration, but not HEPA. The cab has been sealed with foam sealer and duct tape to improve dust control.

Recommendation

**AGENT** Noise

OEL: 85 dBA

Exposure Estimate: dBA

Health Effects Rating: 3 Irreversible health effects of concern

Exposure Rating: 4 (&gt;10% OEL; 95th %tile &gt; OEL)

Exposure Category Unacceptable

Uncertainty: 1 Uncertain

Risk/Control Priority: 12

Basis: Qualitative Judgement

FIG Priority: 12

Discussion: Sound level data were not available for this task. Manufacturer's specifications were not available for the reported model. Unverified report of 102 dB from outside the equipment. Work conducted within enclosed cab. The OEL is expected to be exceeded based on an anticipated interior sound level greater than 85 dBA and long duration of task (up to full shift).

**Medical Surveillance**

Justifiable: yes

Triggered or Critical Exposure yes

Reference: 29 CFR 1010.95

**AGENT** Particulates, NOS

OEL: 5 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 1 Reversible health effects of concern

Exposure Rating: 3 (50-100% OEL; 95th %tile 0.5-1.0 OEL)

Exposure Category Acceptable

Uncertainty: 2 Highly Uncertain

Risk/Control Priority: 3

Basis: Qualitative Judgement

FIG Priority: 6

Discussion: This task reportedly results in high dust levels inside the cab.

**Medical Surveillance**

Justifiable: no

Triggered or Critical Exposure no

Reference:

**Task:** Operate Bobcat with Backhoe Attachment

Frequency:

Operate the Bobcat with backhoe attachment installed. Installation of this attachment requires that the door of the cab enclosure be removed. Duration and frequency vary with job requirements.

Duration: 4 - 8 hours

## Controls:

Cab enclosure door removed.

## Recommendation

**AGENT** Noise

OEL: 85 dBA

Exposure Estimate: dBA

Health Effects Rating: 3 Irreversible health effects of concern

Exposure Rating: 4 (&gt;10% OEL; 95th %tile &gt; OEL)

Exposure Category Unacceptable

Uncertainty: 1 Uncertain

Risk/Control Priority: 12

Basis: Qualitative Judgement

FIG Priority: 12

Discussion: Sound level data were not available for this task. Manufacturer's specifications were not available for the reported model. Unverified report of 102 dB from outside the equipment. Work conducted with cab door removed. The OEL is expected to be exceeded based on an anticipated interior sound level greater than 85 dBA and long duration of task (up to full shift).

**Medical Surveillance**

Justifiable: yes

Triggered or Critical Exposure yes

Reference: 29 CFR 1010.95

**AGENT** Particulates, NOS

OEL: 5 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 1 Reversible health effects of concern

Exposure Rating: 2 (10-50% OEL; 95th %tile 0.1-0.5 OEL)

Exposure Category: Acceptable

Uncertainty: 1 Uncertain

Risk/Control Priority: 2

Basis: Qualitative Judgement

FIG Priority: 2

Discussion: Conditions and duration of operation are variable. Cab is open. OEL may be approached during long duration, aggressive dirt moving jobs under dry conditions.

Medical Surveillance

Justifiable: no

Triggered or Critical Exposure: no

Reference:

**Task:** Operate Snow Blower

Frequency: Daily

The Bobcat is operated in winter with the snow blower attachment for up to 8 hours per day to open roads (for winter timber marking, for example). Task may be repeated over a one month period. Blower is hydrolic powered.

Duration: 4 - 8 hours

Controls:

Recommendation

**AGENT** Noise

OEL: 85 dBA

Exposure Estimate: dBA

Health Effects Rating: 3 Irreversible health effects of concern

Exposure Rating: 4 (>10% OEL; 95th %tile > OEL)

Exposure Category: Unacceptable

Uncertainty: 1 Uncertain

Risk/Control Priority: 12

Basis: Qualitative Judgement

FIG Priority: 12

Discussion: Sound level data were not available for this task. Manufacturer's specifications were not available for the reported model. Unverified report of 102 dB from outside the equipment. Work conducted within enclosed cab. The OEL is expected to be exceeded based on an anticipated interior sound level greater than 85 dBA and long duration of task (up to full shift).

Medical Surveillance

Justifiable: yes

Triggered or Critical Exposure: yes

Reference: 29 CFR 1010.95

**Task:** Pile brush

Frequency: Daily

Use Bobcat with brush grappel attachment to pile brush. Task may be conducted for a period of 4-6 weeks each year and may require full shifts

Duration: 4 - 8 hours

Controls:

Equipment has fully enclosed cab, with ac and heat, and coarse filtration, but not HEPA. The cab has been sealed with foam sealer and duct tape to improve dust control. AC of "Lakeview" equipment does not function requiring operator to keep windows open during the task.

Recommendation

**AGENT** Noise

OEL: 85 dBA

Exposure Estimate: dBA

Health Effects Rating: 3 Irreversible health effects of concern

Exposure Rating: 4 (&gt;10% OEL; 95th %tile &gt; OEL)

Exposure Category Unacceptable

Uncertainty: 1 Uncertain

Risk/Control Priority: 12

Basis: Qualitative Judgement

FIG Priority: 12

Discussion: Sound level data were not available for this task. Manufacturer's specifications were not available for the reported model. Unverified report of 102 dB from outside the equipment. Work conducted within enclosed cab. The OEL is expected to be exceeded based on an anticipated interior sound level greater than 85 dBA and long duration of task (up to full shift).

**Medical Surveillance**

Justifiable: yes

Triggered or Critical Exposure yes

Reference: 29 CFR 1010.95

**AGENT** Particulates, NOS

OEL: 5 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 1 Reversible health effects of concern

Exposure Rating: 3 (50-100% OEL; 95th %tile 0.5-1.0 OEL)

Exposure Category Acceptable

Uncertainty: 1 Uncertain

Risk/Control Priority: 3

Basis: Qualitative Judgement

FIG Priority: 3

Discussion: Task is reportedly dusty. Judgement is based on well sealed cab; When using borrowed Lakeview bobcat cab side windows must be kept open because AC doesn't function.

**Medical Surveillance**

Justifiable: no

Triggered or Critical Exposure no

Reference:

**Process:** Well House Cleaning

Three well houses at the Gerber recreation site require periodic cleaning. Cleaning tasks may include a wet wash down, sweeping, and application of pesticidal baits. Bats have roosted in the New Brick House and mouse activity is ongoing at the Bore House.

**Operating Conditions:**

Buildings are of varying vintage and condition.

**Task:** Apply Pesticide Baits

Frequency: Bi-Annually

Amdro brand ant bait is applied as a band around the perimeter of the building to control ants. Approximately 10 oz of granular bait is poured directly from the container.

Duration: Incidental

**Controls:**

Recommendation

**AGENT** HydromethylnonOEL:  mg/m3Exposure Estimate:  mg/m3Health Effects Rating:  1 Reversible health effects of concernExposure Rating:  1 (<10% OEL; 95th %tile <0.1 OEL)Exposure Category:  AcceptableUncertainty:  0 CertainRisk/Control Priority:  1

Basis: Qualitative Judgement

FIG Priority:  0

Discussion: Amdro granual bait is relatively non-toxic after a single ingestion and slightly toxic after dermal contact. Although barrier protections are not used to prevent skin and eye contact, the risk of direct contact is neglegable. Ten oz of granual formulation are dispensed directly from the container.

Medical Surveillance Justifiable: no  
 Triggered or Critical Exposure no  
 Reference:

**Task:** Clean Rodent Feces and Urine

Frequency:

The Bore House well house is hosed down then swept to clean the building including removal of rodent feces and urine. Task may be conducted as frequently as once per week during the summer.

Duration:

Controls:

Recommendation

**AGENT** HantavirusOEL: Exposure Estimate: Health Effects Rating:  4 Life threatening or disabling injury or illnessExposure Rating:  1 (<10% OEL; 95th %tile <0.1 OEL)Exposure Category:  AcceptableUncertainty:  1 UncertainRisk/Control Priority:  4

Basis: Qualitative Judgement

FIG Priority:  4

Discussion: Observed rodent activity at the Bore House included feces of shelf surfaces and gnawing damage in the ceiling. Wet cleaning are methods used at Bore House where rodent activity is greatest. Barrier protections are not used. Nesting material is reportedly not encountered. Oregon case rate for HPS was less than 2% of 2009 cases in US were attributed to exposure in Oregon, but much higher in all surrounding states. Uncertainty is due to variable rodent infestation and activity level, varying cleaning methods, and lack of barrier protections and disinfection procedures.

Medical Surveillance Justifiable: no  
 Triggered or Critical Exposure no  
 Reference:

**Task:** General Cleaning

Frequency: Quarterly

In newer well houses, the floor and surfaces are dry swept. In the older well house (Bore House, constructed of wood), the interior is rinsed with water before sweeping. Bat and mouse activity were reported.

Duration: &lt;1/2 hour

Controls:

Recommendation

**AGENT** Particulates, NOS

OEL: 5 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 1 Reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 1

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: Quarterly cleaning schedule will result in limited aerosolized particulate even when dry sweeping.

Medical Surveillance

Justifiable: no

Triggered or Critical Exposure: no

Reference:

### Process: Woodworking

Wood is worked in the shop to build a variety of structures or fixtures. For example, insulated structures are used to cover artesian wells. These are built of dimensional lumber and plywood, then painted. Other projects include construction of wood duck nesting houses. These are built of cedar. A variety of floor and bench tools are used including a table saw, radial arm saw, mitre saw, routers, sanders, grinder, worm drive saw, and jig saws.

#### Operating Conditions:

Projects are constructed in the wood shop. Floor and bench mounted equipment is equipped with local exhaust ventilation.

### Task: General Woodworking Tool Operation

Frequency:

Operate a number to floor and bench mounted shop tools and several hand power tools. Duration and frequency of use are variable and based on project. It was reported that approximately 25% of the maintenance workers time was spent of woodworking projects. Duration could range from minutes to full shift. Jobs are non-production, on-off work.

Duration:

#### Controls:

Floor and bench mounted equipment is equipped with local exhaust ventilation.

#### Recommendation

**AGENT** Noise

OEL: 85 dBA

Exposure Estimate: dBA

Health Effects Rating: 3 Irreversible health effects of concern

Exposure Rating: 4 (>10% OEL; 95th %tile > OEL)

Exposure Category: Unacceptable

Uncertainty: 0 Certain

Risk/Control Priority: 12

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: Sound level measurements were not available for this equipemnt, however, simialr wood working shop tools typically produce sound levels greater than 90 dBA and some will produce levels greater than 100 dBA. At these levels it would not be unexpected to exceed the OEL. Use of hearing protectors was inconsistant.

Medical Surveillance

Justifiable: yes

Triggered or Critical Exposure: yes

Reference: 29 CFR 1010.95

**AGENT** Wood dust, Western Red Cedar

OEL: 0.5 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 2 Severe, reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 2

Basis: Engineering Controls in Place

FIG Priority: 0

Discussion: Cedar is used infrequently for wood duck nesting house construction. Dust from cuts made using bench and floor mounted equipment is controlled by mechanical ventilation. Limited hand power tool finish work is required.

Medical Surveillance Justifiable: no  
Triggered or Critical Exposure no  
Reference:

## Multit-Resource Division

### Process: Establish Clay Horizon

Bentonite Clay horizons are established along with adjacent bench marks to conduct long-term studies of wetlands elevation change. Product is purchased in 50 pound bags. It is divided into forths (approximately 12.5 lbs) and transferred into plastic zip lock bags.at the field office. The horizon is established on 1/4 m2 diameter plots using a cyliner form.

#### Operating Conditions:

Transfers of clay are conducted outdoors.

### Task: Establish Clay Horizon

Frequency:

Bentonite clay is dispensed from 12.5 lb bags using a scoop. 3 circles per plot, 1/4 bagy (12.5 lbs) per 3 circle plot. 30 plots total. 4 plots per day. Up to 6 per day. All plots will be completed this season. No mixing is required. The product is simply sprinkled over site. Approximately 10 minutes is required per plot.

Duration: 1 - 4 hours

#### Controls:

Worker stands up wind during application. Water in a one gallon garden sprayer is used to reduce dust and is available for cleaning.

#### Recommendation

**AGENT** Particulates, NOS

OEL: 5 mg/m3

Exposure Estimate: 0.12 mg/m3

Health Effects Rating: 1 Reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 1

Basis: Existing Quantitative Data

FIG Priority: 0

Discussion: Respirable dust was measured during this task by Oregon OSHA Consultation Service. Only one of the samples was returned with detactable respirable particulate. The value for the 260 minute sample was 0.124 mg/m3 for respirable particulate. The investigator suggested that this was due to bull rush and cat tail pollen, and that respirable dust may be a seasonal exposure.

Medical Surveillance Justifiable: no  
Triggered or Critical Exposure no  
Reference:

**AGENT** Silica, crystalline quartz

OEL: 0.025 mg/m3

Exposure Estimate: 0 mg/m3

Health Effects Rating: 3 Irreversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 3

Basis: Existing Quantitative Data

FIG Priority: 0

Discussion: Breathing zone samples collected during this task by Oregon OSHA Consultation Service on 10 Aug 2010 show no detectable silica.

Medical Surveillance Justifiable: no  
Triggered or Critical Exposure no  
Reference:

## Recreation

**Process:** Campground Maintenance, Custodial

Clean vault toilet and fish cleaning stations.

Operating Conditions:

**Task:** Clean Vault Toilets

Frequency: 2 - 3 days/wk

To clean concrete vault toilets a working solution of < 1% sodium hypochlorite is applied to surfaces using a 2 gallon garden sprayer. Then the surfaces are mopped. Frequency is variable but may occur 2-3 times per week and require 5-10 minutes per toilet.

Duration: <1/2 hour

Controls:

Recommendation

Use eye protection when spraying hypochlorite solution.

**AGENT** Chlorine

OEL: 1 ppm

Exposure Estimate: ppm

Health Effects Rating: 4 Life threatening or disabling injury or illness

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 1 Uncertain

Risk/Control Priority: 4

Basis: Qualitative Judgement

FIG Priority: 4

Discussion: OEL is TLV-STEL. Although agent may concentrate to some degree within the enclosure, the structure is well ventilated and not expected to exceed the OEL.

Medical Surveillance Justifiable: no  
Triggered or Critical Exposure no  
Reference:

**AGENT** Sodium Hypochlorite

OEL: 2 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 2 Severe, reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 2

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: Primary route of exposure is via dermal and eye contact with working solution (<1%) liquid or spray. Gloves are worn.

Medical Surveillance Justifiable: no  
Triggered or Critical Exposure no  
Reference:

**Task:** Cleaning Fish Cleaning Station

Frequency:

Cleaning station fixtures are sprayed with dilute (<1%) working solution of sodium hypochlorite, then rinsed with a hose. Frequency variable.

Duration: Incidental

Controls:

Recommendation

**AGENT** Sodium Hypochlorite

OEL: 2 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 2 Severe, reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 2

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: Primary route of exposure is via dermal and eye contact with working solution (<1%) liquid or spray. Task is conducted in open location and running water is available.

Medical Surveillance Justifiable: no  
Triggered or Critical Exposure no  
Reference:

**Task:** Mix Sodium Hypochlorite Solution

Frequency: Weekly

Concentrate product (6% sodium hypochlorite) is poured without measuring into a 2 gallon sprayer with a reported ratio of 1 part concentrate to 10 parts water.

Duration: Incidental

Controls:

None.

Recommendation

Use hand and eye protection when mixing.

**AGENT** Sodium Hypochlorite

OEL: 2 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 2 Severe, reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 2

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: OEL is WEEL-C. Inhalation exposure is low risk and not expected to exceed OEL. Primary route of exposure is dermal and eye contact with concentrate solution. No barrier protections are used.

Medical Surveillance

Justifiable: no

Triggered or Critical Exposure: no

Reference:

**Process:** Vault Toilet Maintenance, Floor Painting

Floors of vault toilets are manually scraped or sanded with belt sander fitted with 50 grit paper and then painted with an oil-based enamel.

Operating Conditions:

**Task:** Paint Vault Toilet Floors, Roller and Brush

Frequency:

A roller and brush are used to apply alkyd enamel paint to concrete vault toilet floors. Brushes and rollers are allowed to dry before disposal. Task requires approximately 1/2 hour per floor to complete. Approximately 1/2 gallon of paint is applied.

Duration: <1/2 hour

Controls:

Recommendation

**AGENT** Petroleum Distillate

OEL: 1800 ppm

Exposure Estimate: ppm

Health Effects Rating: 0 Reversible health effects of little concern

Exposure Rating: 3 (50-100% OEL; 95th %tile 0.5-1.0 OEL)

Exposure Category: Acceptable

Uncertainty: 1 Uncertain

Risk/Control Priority: 0

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: Quantity is for product. Percent agent composition was not available. OEL is NIOSH STEL. Application occurs over short duration. Space is enclosed but naturally well ventilated.

Medical Surveillance

Justifiable: no

Triggered or Critical Exposure: no

Reference:

**Task:** Surface Preparation

Frequency:

Loose paint on floors of vault toilets are typically manually scraped. In some instances a belt sander with 50 grit paper is used to prepare the floor for painting.

Duration: <1/2 hour

Controls:

Recommendation

**AGENT** Particulates, NOS

OEL: 5 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 1 Reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 1

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: Generation of respirable airborne particulate will be minimal and occur over a short duration. Use of belt sander will dramatically increase exposure risk. Task may require less than 1/2 hour for manual methods and less than 15 minutes when using the belt sander.

Medical Surveillance

Justifiable: no

Triggered or Critical Exposure: no

Reference:

**Process:** *Wooden Fixture Maintenance*

Picnic tables and wooden posts are sanded and painted.

Operating Conditions:

**Task:** Apply Paint, Brush and Roller Application

Frequency:

Paint is applied by brush and roller to picnic tables and other campground fixtures. Product is Superdeck Solid Color Deck and Siding Stain DB-9603.

Duration: <1/2 hour

Controls:

Recommendation

**AGENT** Petroleum Distillate

OEL: 500 ppm

Exposure Estimate: ppm

Health Effects Rating: 0 Reversible health effects of little concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 0

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: Product is labeled as acrylic latex and contains alkyd resin in a petroleum distillate carrier. Based on the quantity of product used, application method, and duration of exposure, OEL is not expected to be exceeded during this task. Approximately 10 minutes is required to paint one table. As many as 5 tables may be painted in a day. Less than one quart of product is required per table.

Medical Surveillance

Justifiable: no

Triggered or Critical Exposure: no

Reference:

**Task:** Operate Belt Sander

Frequency:

Use a belt sander to prepare surface of camp fixtures (picnic tables and posts) prior to painting. Forty five minutes are typically required to complete preparation of one table. Four to five tables may be sanded in one day.

Duration: 1 - 4 hours

Controls:

Recommendation

**AGENT** Particulates, NOS

OEL: 5 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 1 Reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 1 Uncertain

Risk/Control Priority: 1

Basis: Qualitative Judgement

FIG Priority: 1

Discussion: This task has the potential for generating a large quantity of particulate. Work is conducted in the open with good natural ventilation. OEL is not expected to be exceeded during this task.

**Medical Surveillance**

Justifiable: no

Triggered or Critical Exposure: no

Reference:

# Health Risk and Further Information Gathering Priorities

## Klamath Falls Resource Office

Division, Shop, Project	Process	Task	Agent	Exposure Category	Justified Medical Surveillance	Triggered Surveillance	Health Risk Priority	FIG Priority
Maintenance	Operate Bobcat	Operate Bobcat with Backhoe Attachment	Noise	Unacceptable	yes	yes	12	12
Maintenance	Operate Bobcat	Mow Weeds	Noise	Unacceptable	yes	yes	12	12
Maintenance	Operate Bobcat	Pile brush	Noise	Unacceptable	yes	yes	12	12
Maintenance	Operate Bobcat	Operate Snow Blower	Noise	Unacceptable	yes	yes	12	12
Maintenance	Fabricate Cowboy Gate	Grind Galvanized Coating	Noise	Unacceptable	yes	yes	12	12
Maintenance	Woodworking	General Woodworking Tool Operati	Noise	Unacceptable	yes	yes	12	0
Maintenance	Modify/Retrofit ATV Trailers	Grinding	Noise	Acceptable	no	yes	6	6
Recreation	Campground Maintenance, Custodial	Clean Vault Toilets	Chlorine	Acceptable	no	no	4	4
Maintenance	Well House Cleaning	Clean Rodent Feces and Urine	Hantavirus	Acceptable	no	no	4	4
Maintenance	Modify/Retrofit ATV Trailers	Apply Primer	Toluene	Acceptable	no	no	4	0
Maintenance	Operate Bobcat	Mow Weeds	Particulates, NOS	Acceptable	no	no	3	6
Maintenance	Operate Bobcat	Pile brush	Particulates, NOS	Acceptable	no	no	3	3
Muliti-Resource Division	Establish Clay Horizon	Establish Clay Horizon	Silica, crystalline quartz	Acceptable	no	no	3	0
Maintenance	Modify/Retrofit ATV Trailers	Apply Primer	Acetone	Acceptable	no	no	2	2
Maintenance	Operate Bobcat	Operate Bobcat with Backhoe Attachment	Particulates, NOS	Acceptable	no	no	2	2
Maintenance	Fabricate Cowboy Gate	Grind Galvanized Coating	Zinc (Zn)	Acceptable	no	no	2	0
Recreation	Campground Maintenance, Custodial	Cleaning Fish Cleaning Station	Sodium Hypochlorite	Acceptable	no	no	2	0
Maintenance	Woodworking	General Woodworking Tool Operati	Wood dust, Western Red Cedar	Acceptable	no	no	2	0
Recreation	Campground Maintenance, Custodial	Mix Sodium Hypochlorite Solution	Sodium Hypochlorite	Acceptable	no	no	2	0
Maintenance	Fabricate Cowboy Gate	Cut Galvanized Pipe, Band Saw	Zinc (Zn)	Acceptable	no	no	2	0
Maintenance	Modify/Retrofit ATV Trailers	Apply Paint	Acetone	Acceptable	no	no	2	0
Maintenance	Mix and Pour Concrete	Pour and Finish Concrete	Portland cement	Acceptable	no	no	2	0
Maintenance	Mix and Pour Concrete	Mix Concrete	Portland cement	Acceptable	no	no	2	0
Maintenance	Fabricate Cowboy Gate	Weld Steel, MIG	Zinc oxide fume	Acceptable	no	no	2	0

Division, Shop, Project	Process	Task	Agent	Exposure Category	Justified Medical Surveillance	Triggered Surveillance	Health Risk Priority	FIG Priority
Recreation	Campground Maintenance, Custodial	Clean Vault Toilets	Sodium Hypochlorite	Acceptable	no	no	2	0
Recreation	Wooden Fixture Maintenance	Operate Belt Sander	Particulates, NOS	Acceptable	no	no	1	1
Maintenance	Fabricate Cowboy Gate	Weld Steel, MIG	Welding fume, NOS	Acceptable	no	no	1	0
Maintenance	Modify/Retrofit ATV Trailers	Grinding	Particulates, NOS	Acceptable	no	no	1	0
Maintenance	Modify/Retrofit ATV Trailers	Welding steel, MIG	Welding fume, NOS	Acceptable	no	no	1	0
Maintenance	Gate Fabrication	Weld Steel, Shielded Metal Arc.	Welding fume, NOS	Acceptable	no	no	1	0
Maintenance	Gate Fabrication	Weld Steel, MIG, In Shop,	Welding fume, NOS	Acceptable	no	no	1	0
Maintenance	Modify/Retrofit ATV Trailers	Cut Steel, Plasma Cutter	Welding fume, NOS	Acceptable	no	no	1	0
Maintenance	Gate Fabrication	Cut Steel Pipe, Band Saw	Particulates, NOS	Acceptable	no	no	1	0
Maintenance	Modify/Retrofit ATV Trailers	Apply Primer	Propane	Acceptable	no	no	1	0
Maintenance	Modify/Retrofit ATV Trailers	Apply Primer	VM&P Naphtha	Acceptable	no	no	1	0
Maintenance	Gate Fabrication	Cut Steel Pipe, Plasma Cutter	Welding fume, NOS	Acceptable	no	no	1	0
Maintenance	Well House Cleaning	General Cleaning	Particulates, NOS	Acceptable	no	no	1	0
Maintenance	Gate Fabrication	Cut Steel Pipe, Oxy-acetylene Torch	Welding fume, NOS	Acceptable	no	no	1	0
Muliti-Resource Division	Establish Clay Horizon	Establish Clay Horizon	Particulates, NOS	Acceptable	no	no	1	0
Recreation	Vault Toilet Maintenance, Floor Painting	Surface Preparation	Particulates, NOS	Acceptable	no	no	1	0
Maintenance	Well House Cleaning	Apply Pesticide Baits	Hydromethylnon	Acceptable	no	no	1	0
Recreation	Wooden Fixture Maintenance	Apply Paint, Brush and Roller Application	Petroleum Distillate	Acceptable	no	no	0	0
Recreation	Vault Toilet Maintenance, Floor Painting	Paint Vault Toilet Floors, Roller and Brush	Petroleum Distillate	Acceptable	no	no	0	0