

# Operation and Maintenance Health and Safety Plan for the Groundwater Remedy

Prepared by  
**Pacific Gas and Electric Company**



September 2014

# Contents

---

<b>Draft Operation and Maintenance Health and Safety Plan .....</b>	<b>1</b>
Introduction .....	1
EIR Mitigation Measure HAZ-2.....	1
HAZ-2 Reasonably Foreseeable Releases of Chemicals from Excavated or Disturbed Soil. ....	1
O&M Staffing Plan and HSP Requirements .....	2
PG&E Employee H&S Requirements.....	2
PG&E Safety Principles.....	3
Timing for Issuing Final O&M HSP(s) .....	8

## Material Safety Data Sheets

NuWell 120

NuWell 310

# Draft Operation and Maintenance Health and Safety Plan

---

## Introduction

Health and Safety Plans are required by EIR Mitigation Measure HAZ-2 and must be in place prior to the initiation of ground disturbing activities at the site. A separately-prepared Construction Health and Safety Plan (Construction HSP) covers all of the requirements of HAZ-2 during the construction period of the Remedy (see appendix to the Construction/Remedial Action Work Plan). The purpose of the Operation and Maintenance (O&M) HSP will be to comply with HAZ-2 requirements during the remedy O&M.

## EIR Mitigation Measure HAZ-2

### HAZ-2 Reasonably Foreseeable Releases of Chemicals from Excavated or Disturbed Soil.

*Before initiating ground-disturbing operations, a health and safety plan shall be developed and implemented by qualified environmental professionals to ensure health and safety precautions are being met. It is not possible to prepare the health and safety plan at this stage of the planning process because final construction plans and other design documents have not been finalized in sufficient detail. However, at a minimum, the health and safety plan shall include procedures to mitigate potential hazards, and such procedures shall include the use of PPE, measures that provide protection from physical hazards, measures that provide protection from chemical hazards that may be present at the site, decontamination procedures, and worker and health and safety monitoring criteria to be implemented during construction. The worker health and safety plan shall include protective measures and PPE that are specific to the conditions of concern and meet the requirements of the U.S. Occupational Safety and Health Administration's (OSHA's) construction safety requirements and Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120). In accordance with OSHA requirements, appropriate training and recordkeeping shall also be a part of the health and safety program. The worker health and safety plan shall be certified by a Certified Industrial Hygienist in accordance with OSHA regulations. The worker health and safety plan shall be explained to the construction workers and all workers shall be required to sign the plan, which will be kept on the construction site at all times.*

*Worker safety training shall occur prior to initiation of ground disturbing activities. Training shall include the review of all health and safety measures and procedures. All workers and engineering inspectors at the site shall provide written acknowledgement that the soils management plan (discussed below), worker health and safety plan, and community health and safety plan were reviewed and training was received prior to commencement of construction activities.*

The following are specific elements and directives that shall be included in the health and safety plan and implemented by PG&E during construction, operation and maintenance, and decommissioning of this project:

- a. Vehicles traveling on unpaved roadways or surfaces would be directed to avoid traveling in areas where contaminated soils are known to be present; vehicle speeds shall be controlled (e.g., limited to 15 mph or slower) to limit generation of dust; measures, such as wetting of surfaces, will be employed to prevent dust generation by vehicular traffic or other dust-generating work activities.
- b. Pre-mobilization planning shall occur during which the likelihood of encountering contaminated soils shall be reviewed along with the HMBP, site-specific health and safety plan, and SOPs so that the procedures are followed and the contingencies for handling contaminated soils are in-place prior to implementing the field operations.

- c. Should evidence of contaminated soil be identified during ground disturbing activities (e.g., noxious odors, discolored soil), work in this area will immediately cease until soil samples can be collected and analyzed for the presence of contaminants by the site supervisor or the site safety officer. Contaminated soil shall be managed and disposed of in accordance with a project-specific health and safety plan and soil management plan. The health and safety plan and soil management plan shall be approved by DTSC before beginning any ground disturbing activities. While the project is exempt from the requirements of the San Bernardino County Division of Environmental Health, the health and safety plan and soil management plan shall be prepared in general accordance with the substantive requirements of this agency.
- d. In the event that drilling sites must be located within areas of suspected soil contamination, the appropriate PPE shall be worn by all personnel working in these areas and methods specified in the health and safety plan used to control the generation of dust. When working in these areas, personnel shall be required to follow all guidance presented in the site-specific health and safety plan and soil management plan. The site-specific health and safety plan shall include provisions for site control such as, but not limited to, delineation of the exclusion, contaminant reduction and support zones for each work area, decontamination procedures, and procedures for the handling of contaminated soils and other investigation derived wastes. Soil that is excavated shall be loaded directly into containers such as roll-off bins; dust suppression methods shall be used prior to and during loading of soils into the bins. Suspected contaminated soils shall be segregated from suspected uncontaminated soils.
- e. Personnel working at the site shall be trained in Hazardous Waste Operations.

All soil excavated and placed in roll-off bins or trucks for transportation off-site shall be covered with a tarp or rigid closure before transporting, and personnel working in the area shall be positioned upwind of the loading location.

## O&M Staffing Plan and HSP Requirements

PG&E has not yet made a final determination about the nature of the onsite staffing of the future Remedy O&M functions. The onsite staff will consist of field workers, supervision, administrative support, compliance support, and technical support. Some or this entire staff will be PG&E employees. Some or this entire staff may be contractors.

If the Remedy is staffed by PG&E employees, a comprehensive PG&E employee-specific HSP will be developed that addresses all of PG&E's applicable safety standards, plus it must be consistent with the requirements of HAZ-2. The HSP for PG&E's Topock employees must comply with PG&E's requirements in the Section below.

If the Remedy is staffed entirely by contractor employees, the contractor will develop a site-specific H&SP that is compliant with the requirements in HAZ-2 and their corporate H&SP standards. PG&E will review and accept the contractors' plan(s), prior to work being initiated.

If the Remedy is staffed with a combination of PG&E employees and contractors, PG&E will establish a site-specific H&SP as described above and each contractor will be required to establish their own H&SPs which comply with the requirements above.

## PG&E Employee HSP Requirements

PG&E employee work groups are required to follow PG&E's internal policies, standards, and procedures when developing HSPs. The current PG&E Standard is titled "Safety and Health Standard SAFE-1001S", last issued on February 28, 2013.

If a PG&E employee HSP is needed (because PG&E employees are providing O&M services for the Remedy), PG&E's safety policies, standards, and procedures will be used for developing the O&M HSP prior to operation of the Remedy.

# PG&E Safety Principles

PG&E has a long and proud history for promoting workplace safety. One of the ways that PG&E communicates this commitment is by publicizing these Safety Principles, which are built into PG&E procedures and H&SPs. All employees are expected to embrace these principles:

## **Nothing is more important than public, employee and contractor safety.**

- We must create an environment at PG&E where employees feel that they can raise all safety-related issues without peer pressure or fear of reprisal. This includes near hits and unsafe situations of any kind.
- We encourage open and honest communication on safety, so that we identify and eliminate unsafe situations and avoid incidents and injuries.
- To enhance safety and prevent future incidents, we have adopted a voluntary non-punitive self-reporting system for unsafe occurrences and hazardous situations.
- We acknowledge and recognize safe behavior and practices to encourage our employees, and to reinforce continuous learning.
- Safety discussions are used as an opportunity for learning and coaching. When an incident occurs, our first priority is to understand what happened and the underlying causes, not to discipline.
- We have adopted a behavior-based approach to discipline. Discipline will only be considered when employees act in a reckless manner, demonstrate a pattern of carelessness or non-compliance, put themselves, their coworkers or the public at risk by intentionally violating the Keys To Life or Code of Conduct.

## **PG&E's Safety Commitment**

- We will train, equip and qualify our people to work safety.
- We will design, build, operate and maintain our systems with the highest regard for the safety and well-being of all.
- We will identify and address the underlying causes of incidents to prevent them from recurring.

## **Personal Safety Commitment**

- I will make my personal safety and the safety of my co-workers and the public my highest priority.
- I will make sure I understand how to do the work safely before I start the job.
- I will speak up about safety concerns.
- I will look for safety hazards and intervene to stop unsafe acts.
- I will close out and properly document my work.

## **Keys to Life**

### ***To assure your safety and that of your co-workers and the public:***

- Follow safe driving principles.
- Use appropriate life-saving personal protective equipment (PPE).
- Follow electrical safety testing and grounding rules.
- Follow clearance and energy lock-out rules.
- Follow confined space rules.
- Follow suspended load rules.
- Follow safety at heights rules.
- Follow excavation procedures.

- Follow hazardous environment procedures.

## **Timing for Issuing Final O&M HSP(s)**

Final O&M HSP(s) will be submitted to DTSC and DOI by PG&E during the start-up phase of the remedy.



## Safety and Health Program Standard

**Summary** This standard describes Pacific Gas and Electric Company's (PG&E's) Safety and Health Program, which each organization is to integrate into all business systems and work processes. This standard and its implementing procedures are PG&E's written Injury and Illness Prevention Program (IPP), which is required under California law and or Federal Law.

**Target Audience** Officers, directors, and their designees, all of whom are responsible for integrating the Safety and Health Program into their business systems and work processes.

**Safety** Performing the procedures that implement this standard will diminish the risk of specific hazards to personnel, the public, and equipment.

### Table of Contents

Subsection	Title	Page
1	Safety and Health Program Integration	2
2	Training	3
3	Human Performance Tools	4
4	Adequate Communication	6
5	Basic Safety Rules	6
6	Employee Involvement	6
7	Performance Management	6
8	Measurement and Evaluation	7
9	Records Management	7



## Safety and Health Program Standard

### Requirements

#### 1 Safety and Health Program Integration

1.1 Each officer, director, and designee is responsible for developing and implementing plans to integrate the four steps of the Safety and Health Program into all business systems and work processes:

1. Identify hazards
2. Evaluate hazards
3. Control hazards
4. Evaluate controls

1.2 The following methods are to be used to develop and implement these plans to ensure employees are familiar with and comply with the Safety and Health Program:

1. Training
2. Human Performance Tools
3. Adequate Communication
4. Basic Safety Rules
5. Employee Involvement
6. Performance Management
7. Measurement and Evaluation
8. Records Management



## Safety and Health Program Standard

### 2 Training

#### 2.1 Training includes the following:

1. Incorporate the four steps of the Safety and Health Program
  - a. Take proactive steps to identify hazards (see the following procedures):
    - SH&C Procedure 201, Hazard Evaluation and Control
    - SH&C Procedure 202, Incident Notification, Investigation, and Analysis
    - SH&C Procedure 203, Inspections
    - SH&C Procedure 206, Design and System/Change Management Review
  - b. Evaluate the hazards (see the following procedures):
    - SH&C Procedure 201, Hazard Evaluation and Control
    - SH&C Procedure 204, Tracking and Trend Analysis
    - SH&C Procedure 221, Ergonomics Program
  - c. Control the hazards (see the following procedures):
    - SH&C Procedure 201, Hazard Evaluation and Control
    - SH&C Procedure 202, Incident Notification, Investigation, and Analysis
  - d. Evaluate the hazard controls (see the following procedures):
    - SH&C Procedure 201, Hazard Evaluation and Control
    - SH&C Procedure 202, Incident Notification, Investigation, and Analysis
2. Teach employees, about the hazards relevant to the business systems and work processes they deal with and how to implement the necessary hazard controls.
3. Train employees when the hazards they will face change.
4. Familiarize each employee with group participation techniques.
5. Ensure contractors and temporary agency workers receive similar training from their employers before starting work for PG&E.



## Safety and Health Program Standard

### 3 Human Performance Tools

3.1 Human performance tools found in the Safety & Performance Fundamentals Handbook include the following:

1. Tailboards

- a. Ensure organization leaders provide tailboards before performing work and when work conditions change.
- b. Include the task purpose, scope, sequence and nature of the work.
- c. Review applicable procedures, drawings, documents, prerequisites, or any other items needed to perform the work.
- d. Use three-way communication to validate that task assignments are understood and roles and responsibilities for the work are clear. This includes limits of the required work; work hand-offs, controlling authority or person-in-charge as, and emergency procedures and contacts.

2. Two-Minute Rule

.Coach employees to STOP and take two-minutes (two-minute rule) to think through the work/task and understand the hazards and the controls to improve situational awareness before beginning a task and to check for changing conditions.

3. Self-Checking STAR (Stop, Think, Act, and Review)

a. Stop

- (1) Take the time to pause and focus on the task to be performed
- (2) Eliminate distractions

b. Think

- (1) Think about the task to be performed
- (2) Understand what is to be done
- (3) Know the expected responses and indications of that action
- (4) Determine if the task is appropriate for the given conditions
- (5) Identify the correct component
- (6) Plan the actions to take if the response is not as expected



## Safety and Health Program Standard

- c . Act
  - (1) Perform the task
- d . Review
  - (1) Evaluate the results of the action
  - (2) Verify the correct, expected response
  - (3) Take planned actions if the response is not as expected
- 4. Stop When Unsure
  - When a question on the job or while performing work arises, creating uncertainty, stop and ask questions to understand what the work is, the hazards involved and how to perform the work.
- 5. Questioning Attitude
  - Foster situational awareness, encouraging thought about safety before action is taken.
- 6. Procedure Use and Adherence
  - Work is to be performed in accordance with approved procedures and supporting documents. Understanding the overall purpose and strategy of the procedure promotes safer outcomes.
- 7. Placekeeping
  - Documents completion of procedural steps.
- 8. Phonetic Alphabet
  - Use when communicating information related to equipment or components.
- 9. Three-Way Communication
  - Promote a reliable transfer of information and understanding ensuring the correct action is taken.



## Safety and Health Program Standard

### 4 Adequate Communication

1. Includes, but is not limited to the following:
  - Workgroup meetings
  - Jobsite tailboards
  - Inter-departmental agreements
  - Contract language
  - Bulletin board postings
  - Electronic media
2. Collect input from stakeholders and ensure they are informed of the outcome when participating in an industry or regulatory forum, such as the American Society for Testing and Materials (ASTM) or OSHA-Advisory committee.

### 5 Basic Safety Rules

- Inform employees that compliance with the Code of Safe Practices and the Safety and Performance Fundamentals Handbook is a condition of employment.
  - a. Communicate updates or revisions to all standards, procedures, and rules relevant to the employees' work.

### 6 Employee Involvement

- Involve employees in the Safety and Health Program on an on-going basis.
- When specific safety and health issues are to be resolved, use Grass Roots Teams, chartered safety/ad hoc teams, or workgroups comprised of critical stakeholders.

### 7 Performance Management

- Integrate the Safety and Health Program into all work through individual job expectations and team charters.
- To define team expectations, use a charter that defines purpose, scope of authority, roles and responsibilities, communication and documentation requirements, and required resources.
- Hold individuals and teams accountable through recognition and disciplinary action. Use PG&E's Human Resources programs of Performance Management for management and applicable A&T employees and Positive Discipline for bargaining unit employees.



---

## Safety and Health Program Standard

### 8 Measurement and Evaluation

- Establish goals to measure Safety and Health Program progress.
- Evaluate integration of the Safety and Health Program into all work through work site observations, inspections or other observations.

### 9 Records Management

- Document and maintain training records until subsequent training is provided to employees.
- Document and maintain all other Safety and Health Program records for at least three years. Records identified in the Guide to Record Retention must be maintained for the period of time specified.

**END of Requirements**

---



## Safety and Health Program Standard

<b>Definitions</b>	A <b>hazard</b> is any existing or potential condition or act that can result in a loss such as death, injury, illness, or property damage.
<b>Implementation Responsibilities</b>	Each officer and director is responsible for implementing the Safety and Health Program within his or her organization and monitoring compliance with it.  Safety is responsible for monitoring the company-wide compliance with this standard.
<b>Governing Document</b>	Safety and Health Policy
<b>Compliance Requirement/Regulatory Commitment</b>	California Code of Regulations, Title 8, Section 3203 – Injury and Illness Prevention Program
<b>Reference Documents</b>	<b>Developmental References:</b> NA  <b>Supplemental References:</b> <ul style="list-style-type: none"><li>• <u>SH&amp;C Procedure 201, Hazard Evaluation and Control</u></li><li>• <u>SH&amp;C Procedure 202, Incident Notification, Investigation, and Analysis</u></li><li>• <u>SH&amp;C Procedure 203, Inspections</u></li><li>• <u>SH&amp;C Procedure 204, Tracking and Trend Analysis</u></li><li>• <u>SH&amp;C Procedure 206, Design and System/Change Management Review</u></li><li>• <u>SH&amp;C Procedure 221, Ergonomics Program</u></li><li>• <u>Code of Safe Practices (CSP)</u></li><li>• <u>Safety &amp; Performance Fundamentals Handbook</u></li></ul>
<b>Appendices</b>	NA



## Safety and Health Program Standard

**Attachments**

NA

**Document  
Revision**

Safety and Health Program, USP 22, dated 01/15/2009

**Approved By**

Linda Limberg, Senior Director, Safety

**Document Owners**

Louis Renner,  
Safety Programs Manager, Safety

**Document  
Contact**

Louis Renner, Safety Programs Manager,  
Safety

**Revision Notes**

Where?	What Changed?
Tailboards – Section 3.1.1.d	Changed “two-way” communication to “three-way” communication.

## **Material Safety Data Sheets**

---

**NuWell 120**

---

# JOHNSON SCREENS

A Weatherford Company

## Material Safety Data Sheet

### SECTION 1 - CHEMICAL PRODUCT AND COMPANY INFORMATION

**Product Name:** NW-120

**Part Number:**

**Chemical Family:** Inorganic acid

**Manufacturer's Name:** Johnson Screens / A Weatherford Company

**Address:** P.O. Box 64118 – St. Paul, MN 55164

**Product/Technical Information Phone Number:** 651-636-3900

**Medical/Handling Emergency Phone Number:** CHEMTREC 1-800-424-9300

**Transportation Emergency Phone Number:** CHEMTREC 1-800-424-9300

**Issue Date:** 06-06-03

**Revision Date/Revision Number:** 06-06-05 /01

### SECTION 2 – COMPOSITION INFORMATION

	% by Weight	
Phosphoric Acid	65 – 80	Food Grade
Orthophosphoric Acid (CAS # 7664-38-2)		

### SECTION 3 - HAZARDS IDENTIFICATION

**Appearance & Odor:** Colorless to lightly colored liquid; nil odor

**Emergency Overview:** Overexposure may aggravate disorders of the skin / respiratory system

**Fire & Explosion Hazards:** None currently known

**Primary Route(s) of Exposure:** Skin, eyes, digestive tract, respiratory system

**Inhalation – Acute Effects:** May cause irritation / coughing

**Skin Contact – Acute Effects:** May cause severe irritation; prolonged or repeated skin contact may cause burns, irreversible damage

**Eye Contact – Acute Effects:** May cause severe irritation / burns; prolonged or repeated eye contact may cause irreversible damage or blindness

**Ingestion – Acute Effects:** May cause irritation, burns, pain, nausea, vomiting, shock symptoms (rapid pulse, sweating, collapse)

**SECTION 4 - FIRST AID MEASURES**

.....

**Inhalation First Aid:** Remove affected person from area to fresh air and provide oxygen if breathing is difficult. Give artificial respiration ONLY if breathing has stopped and give CPR ONLY if there is no breathing and no pulse. Obtain medical attention.

**Skin Contact First Aid:** Immediately remove clothing from affected area and wash skin for 15 minutes with flowing water and soap. Clothing should be discarded or washed before reuse. Obtain medical assistance if irritation develops.

**Eye Contact First Aid:** Immediately irrigate eyes with flowing water continuously for 15 minutes while holding eyes open. Contacts should be removed before or during flushing. Obtain medical attention immediately.

**Ingestion First Aid:** If victim is alert and not convulsing, rinse mouth with water and give plenty of water to drink. If spontaneous vomiting occurs, have affected person lean forward with head down to avoid breathing in of vomitus. Rinse mouth again and give more water to drink. Obtain medical attention.

**Medical Conditions Aggravated:** Persons with pre-existing skin disorders or eye problems, or impaired respiratory function may be more susceptible to the effects of the substance.

**Note to Physician:** May give oxygen if breathing difficulty following exposure. Observe for possible delayed reactions.

**SECTION 5 - FIRE FIGHTING MEASURES**

.....

**Flash Point/Method:** N/A

**Auto Ignition Temperature:**

**Upper/Lower Explosion Limits:** Not determined

**Extinguishing Media:** Chemical type foam, CO<sub>2</sub> (Carbon Dioxide), dry chemical, water fog

**Fire Fighting Procedures:** Not considered a fire hazard

**Fire & Explosion Hazards:** Is not flammable, however the following can occur during a fire: phosphorus oxides and/or phosphine from thermal decomposition and hydrogen from reactive metals.

**Hazardous Products of Decomposition and/or Combustion:** Oxides of phosphorus

**NFPA Ratings:**

HEALTH	FLAMMABILITY	REACTIVITY	OTHER
3	0	0	

0 = Insignificant    1 = Slight    2 = Moderate    3 = High    4 = Extreme

## SECTION 6 – ACCIDENTAL RELEASE MEASURES

---

Small spill: neutralize acid spill with alkali such as soda ash, sodium bicarbonate, limestone or lime. Absorb material with an inert material such as sand, vermiculite, diatomaceous earth or other absorbent material and place in chemical waste container to be disposed at an appropriate waste disposal facility according to current applicable laws and regulations and product characteristics at time of disposal. Adequate ventilation is required for soda ash due to the release of carbon dioxide gas. No smoking in spill area.

Large spill: contain with dikes and transfer the material to appropriate containers for reclamation or disposal. Absorb remaining spill with an inert material such as sand, vermiculite or other absorbent material and place in chemical waste container to be disposed at an appropriate waste disposal facility according to current applicable laws and regulations and product characteristics at time of disposal. Neutralize residue with alkali such as soda ash, sodium bicarbonate, limestone or lime. Adequate ventilation is required for soda ash due to the release of carbon dioxide gas. No smoking in spill area.

Release Notes: If spill could potentially enter any waterway, including intermittent dry creeks, contact the local authorities. If in the U.S., contact the US COAST GUARD NATIONAL RESPONSE CENTER toll free number 800-424-8802. In case of accident or road spill notify: CHEMTREC in USA at 800-424-9300; CANUTEC in Canada at 613-996-6666; CHEMTREC in other countries at (International code)+1-703-527-3887.

Comments: See Section 13 for disposal information and Section 15 for regulatory requirements. Large and small spills may have a broad definition depending on the user's handling system. Therefore, the spill category must be defined at the point of release by technically qualified personnel.

## SECTION 7 – HANDLING AND STORAGE

---

**Handling**: For industrial use only. Heat is generated upon dilution with water. When diluting, add product slowly to water with agitation. Never add water to the acid as severe splashing and reactivity will result. Always add acid to water. ATTENTION: This container hazardous when emptied. Since emptied container contains product residues (vapor or liquid), all labeled hazard precautions must be observed.

**Storage**: Keep container closed when not in use. Keep out of reach of children.

**General Comments**: Wear protective equipment when handling. Use only with adequate ventilation. Wash thoroughly after handling. Do not breathe vapor, mist, or dust. Do not get in eyes, on skin, or clothing. Do not swallow.

## SECTION 8 – PERSONAL PROTECTION/EXPOSURE CONTROL

**Respiratory Protection:** If exposure limits are exceeded, or if exposure may occur, use a NIOSH/MSHA respirator approved for your conditions of exposure. Refer to the most recent NIOSH publications concerning chemical hazards, or consult your safety equipment supplier. Respiratory protection programs must be in compliance with OSHA requirements in 29 CFR 1910.134. For emergencies, a NIOSH/MSHA approved positive pressure breathing apparatus should be readily available.

**Skin Protection:** Acid proof gloves; clean, body covering clothing; rubber apron; rubber boots

**Eye Protection:** Chemical goggles or faceshield (ANSI Z87.1 or approved equivalent). Always wear eye protection when working with chemicals. Do not wear contact lenses when working with chemicals.

**Ventilation Protection:** Adequate ventilation is required to minimize exposure or to maintain exposure levels below OSHA/ACGIH requirements. Mechanical general ventilation is usually adequate. Local mechanical ventilation may be required.

**Other Protection:** Safety shower, eye wash fountain, and washing facilities should be readily available. In case of emergency or when dusting, misting, or splashing may occur, wear respiratory protection, eye protection, gloves, helmet, boots, and complete protective body covering.

### Exposure Limits:

OSHA	ACGIH	NIOSH	SUPPLIER
TWA/TLV (ppm)	TWA/TLV (ppm)		
0.25	0.25		

## SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

**Appearance & Odor:** Colorless to lightly colored liquid, no odor

**Vapor Pressure:** 5.700 @ 68° F.

**Vapor Density (Air=1):** Not determined

**Boiling Point:** 275° F.

**Melting Point:** -17.5° C (75% H<sub>3</sub>PO<sub>4</sub>)

**Specific Gravity:** 1.5850 @ 60° F.

**Solubility in Water:** Complete

**Volatile Percentage:** Not determined

**pH:** aqueous approx. 1.000 to 2.000

**Flash Point/method:** N/A

**Auto Ignition Temperature:** None

**Upper/Lower Explosion Limits:** Not determined

**Other:**

## SECTION 10 - STABILITY AND REACTIVITY

---

**Stability:** Stable under normal conditions of storage and use

**Incompatibilities:** Inorganic bases, metals/metal blends; contact with some metals can generate explosive hydrogen gas

**Polymerization:** Will not occur

**Decomposition:** Oxides of phosphorus and/or phosphine from thermal decomposition and hydrogen gas from reaction with metals

**Conditions to Avoid:** High temperature

## SECTION 11 - TOXICOLOGICAL INFORMATION

---

**Inhalation – Acute:** LC<sub>50</sub> (guinea pig, mouse, rat, rabbit): 61-1,689 mg/m<sup>3</sup>

**Inhalation – Chronic:**

**Skin Contact – Acute:** LD<sub>50</sub> (rabbit): >1,260 to > 3,160 mg/kg

**Skin Contact – Chronic:**

**Eye Contact – Acute:**

**Ingestion – Acute:** LD<sub>50</sub> (rat): 1,530 mg/kg

**Ingestion – Chronic:**

**Carcinogenicity/Mutagenicity:** No components present in excess of 0.1% by weight are listed as carcinogens by IARC, NTP, or OSHA

**Reproductive Effects:** 375 mg/kg bw did not affect offspring growth in rats

**Neurotoxicity:** None known

**Other Effects:** In vitro bacterial genetic toxicity negative

**Target Organs:** Overexposure may cause damage to all body tissues

## SECTION 12 – ECOLOGICAL INFORMATION

---

Ecotoxicity: acute toxicity to fish: 96 hour LC<sub>50</sub>: 3.0 – 3.5 mg/L

Acute toxicity to Daphnia: survival rate depends on pH

Environmental Fate: phosphoric acid undergoes ionic dissociation in water.

Toxicity: Moderately toxic to aquatic organisms as defined by USEPA

Degradation Products: while acidity of this material is readily reduced in natural waters, the resulting phosphate may persist indefinitely or incorporate into biological systems.

## SECTION 13 – DISPOSAL CONSIDERATIONS

---

Material that cannot be used or chemically reprocessed and empty containers should be disposed of in accordance with all applicable regulations. Product containers should be thoroughly emptied before disposal. Generators of waste material are required to

evaluate all waste for compliance with RCRA and any local disposal procedures and regulations. NOTE: State and local regulations may be more stringent than federal regulations.

**SECTION 14 – TRANSPORTATION INFORMATION**

**DOT Shipping Description:**

Proper Shipping Name: Phosphoric Acid  
 Hazard Class: 8, UN1805, PG III  
 Label Requirements: CORROSIVE  
 Reportable Quantity: None

European Transportation: ADR/RID Hazard Classification: 8 ADR/RID Item  
 Number: 17°C  
 U.S. Custom Harmonization Number: 2809.20.00.30

**SECTION 15 – REGULATORY INFORMATION**

SARA Hazard Category: This product has been reviewed according to the EPA Hazard Categories promulgated under Section 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Fire: No Pressure Generating: No Reactivity: No Acute: Yes Chronic: No

40 CFR Part 355 – Extremely Hazardous Substances: None  
 40 CFR Part 370 – Hazardous Chemical Reporting: Applicable

TSCA Inventory Status: Chemical components listed on TSCA Inventory

SARA Title III: This product contains the following substances to the reporting requirements of Title III (EPCRA) of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

Chemical	CAS No.	% by Wt.	CERCLA RQ (lbs)	SARA (1986) Reporting		
				311	312	313
Phosphoric Acid	7664-38-2	65 – 80	5,000	Yes	Yes	No

CERCLA/Superfund, 40 CFR Parts 117, 302: If this product contains components subject to substances designated as CERCLA Reportable Quantity (RQ) Substances, it will be designated in the above table with the RQ value in pounds. If there is a release of RQ Substance to the environment, notification to the National Response Center, Washington, D.C. (1-800-424-8802) is required.

**SECTION 16 – OTHER INFORMATION**

---

**Disclaimer:** The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the user thereof. It is the buyer's responsibility to ensure that its activities comply with federal, state, provincial and local laws.

**NuWell 310**

---

# JOHNSON SCREENS

A Weatherford Company

## Material Safety Data Sheet

### SECTION 1 - CHEMICAL PRODUCT AND COMPANY INFORMATION

**Product Name:** NW-310

**Part Number:**                      **Chemical Family:** Polymeric acid solution to enhance acid cleaning activity

**Manufacturer's Name:** Johnson Screens /A Weatherford Company

**Address:** P.O. Box 64118 – St. Paul, MN 55164

**Product/Technical Information Phone Number:** 651-636-3900

**Medical/Handling Emergency Phone Number:** CHEMTREC 1-800-424-9300

**Transportation Emergency Phone Number:** CHEMTREC 1-800-424-9300

**Issue Date:** 06-01-1997

**Revision Date/Revision Number:** 01/20/2012 / 06

### SECTION 2 – COMPOSITION INFORMATION

\*\*\*\*\*

No constituents of the formulae are listed or considered hazardous under OSHA 29CFR 1910.1200

All components are listed under TSCA

### SECTION 3 - HAZARDS IDENTIFICATION

\*\*\*\*\*

**Appearance & Odor:** Clear yellow liquid

**Emergency Overview:** Product is a mild acid – handle with caution

**Fire & Explosion Hazards:** Contact with metals may produce flammable hydrogen gas

**Primary Route(s) of Exposure:** Skin, eyes, and inhalation

**Inhalation – Acute Effects:** Irritation or corrosion of mucous membranes with upper and lower respiratory irritation

**Skin Contact – Acute Effects:** Skin discomfort or rash

**Eye Contact – Acute Effects:** Irritation, tearing, or blurring of vision

**Ingestion – Acute Effects:** Diarrhea

**SECTION 4 - FIRST AID MEASURES**

\*\*\*\*\*

**Inhalation First Aid:** Remove affected person from area to fresh air and provide oxygen if breathing is difficult. Give artificial respiration ONLY if breathing has stopped and give CPR ONLY if there is no breathing and no pulse. Obtain medical attention.

**Skin Contact First Aid:** Immediately remove clothing from affected area and wash skin for 15 minutes with flowing water and soap. Clothing should be discarded or washed before reuse. Obtain medical assistance if irritation develops.

**Eye Contact First Aid:** Immediately irrigate eyes with flowing water continuously for 15 minutes while holding eyes open. Contacts should be removed before or during flushing. Obtain medical attention immediately.

**Ingestion First Aid:** If victim is alert and not convulsing, rinse mouth with water and give plenty of water to drink. If spontaneous vomiting occurs, have affected person lean forward with head down to avoid breathing in of vomitus. Rinse mouth again and give more water to drink. Obtain medical attention.

**Medical Conditions Aggravated:** None known

**Note to Physician:** Product has some surfactant qualities that may result in a laxative effect in cases of ingestion.

**SECTION 5 - FIRE FIGHTING MEASURES**

\*\*\*\*\*

**Flash Point/Method:** None

**Auto Ignition Temperature:** N/D

**Upper/Lower Explosion Limits:** N/A

**Extinguishing Media:** That which is appropriate for surrounding fire

**Fire Fighting Procedures:** Wear self-contained breathing apparatus. Carbon monoxide, carbon dioxide, phosphorus oxides (extremely small) may be released in a fire.

**Fire & Explosion Hazards:** High heat fires could result in excessive carbon monoxide release.

**Hazardous Products of Decomposition and/or Combustion:** Carbon monoxide, carbon dioxide, and phosphorus oxides.

**NFPA Ratings:**

HEALTH	FLAMMABILITY	REACTIVITY	OTHER
1	0	1	None

### SECTION 6 – ACCIDENTAL RELEASE MEASURES

\*\*\*\*\*

Neutralize spills with lime or soda ash. Flush spill area with plenty of water. Keep spectators away. Treat as an acid material. Contain spill with inert material (e.g. sand, earth, absorbable material). Transfer diking material to suitable container for recovery or disposal. Material may be diluted and rinsed down a sanitary sewer system to a municipal wastewater plant. If quantities in excess of 500 gallons are rinsed to a sewer, the district should be notified of possible pH upset to the wastewater plant.

All disposal methods must be in compliance with all Federal, State, Local and Provincial laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.

### SECTION 7 – HANDLING AND STORAGE

\*\*\*\*\*

**Handling:** Minimize skin contact. Wash with soap and water before eating, drinking, smoking, or using toilet facilities.

**Storage:** Keep in well ventilated area. Keep package tightly closed. Store above 32° F. (0° C.) Product should not be stored with or near strong caustic or oxidizing agents.

**General Comments:** None

### SECTION 8 – PERSONAL PROTECTION / EXPOSURE CONTROL

\*\*\*\*\*

**Respiratory Protection:** None required for normal use

**Skin Protection:** Neoprene gloves or approved chemical protective gloves suitable for use in acid material

**Eye Protection:** Chemical splash goggles (ANSI Z871) or approved equivalent

**Ventilation Protection:** Standard plant ventilation should be sufficient

**Other Protection:** Safety showers, with quick opening valves which stay open, and eye wash fountains, or other means of washing the eyes with a gentle flow of cool to tepid tap water, should be readily available in all areas where this material is handled or stored. Water should be supplied through insulated and heat-traced lines to prevent freeze-ups in cold weather.

**Exposure Limits:**

OSHA	ACGIH	NIOSH	SUPPLIER
None	None	None	AEL=20mg/m <sup>3</sup> - 8&12 hrs TWA

### SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

\*\*\*\*\*

**Appearance & Odor:** Clear yellow liquid

**Vapor Pressure:** Vapor is water

**Vapor Density:** 1.0 (vapor is water)

**Boiling Point:** 250° F.

**Melting Point:** N/A

**Specific Gravity:** 1.19

**Solubility in Water:** Complete

**Volatile Percentage:** 34%

**pH:** 2.3

**Flash Point/method:** Will not flash

**Auto Ignition Temperature:** N/D

**Upper/Lower Explosion Limits:** N/A

**Other:**

### SECTION 10 - STABILITY AND REACTIVITY

\*\*\*\*\*

**Stability:** Stable

**Incompatibilities:** Metals, oxidizing agents such as nitric acid, cyanide, sulfides

**Polymerization:** No

**Decomposition:** Carbon monoxide, carbon dioxide, phosphorus oxides (extremely small)

**Conditions to Avoid:** Contact with strong oxidizing chemicals such as calcium hypochlorite

### SECTION 11 - TOXICOLOGICAL INFORMATION

\*\*\*\*\*

**Inhalation – Acute:** 4 hrs. LC<sub>50</sub> (rats) – 14 mg/L

**Inhalation – Chronic:** Not established

**Skin Contact – Acute:** Dermal LD<sub>50</sub> Rabbits > 3000 mg/kg

**Skin Contact – Chronic:** Skin irritation Rabbits (Draize Score 1.6 /8)

**Eye Contact – Acute:** Minimal Rabbits (Draize score 2.7 / 110)

**Ingestion – Acute:** Oral LD<sub>50</sub> (Rats) > 5000 mg/kg

**Ingestion – Chronic:** 600 mg/kg (90 day study dogs) produced some kidney function changes \*

**Carcinogenicity/Mutagenicity:** None

**Reproductive Effects:** None known

**Neurotoxicity:** None

**Other Effects:** Some calcium loss in long term feeding studies (Dogs) \*

**Target Organs:** Kidneys, Bones

### SECTION 12 – ECOLOGICAL INFORMATION

\*\*\*\*\*

Biodegradability:

BOD (5) 1.0% solution 7950 mg O<sub>2</sub>/L

BOD (5) 0.1% solution 725 mg O<sub>2</sub>/L

Total Organic Carbon 2.2%

Non-bioaccumulating

Fish toxicity: Bluegill (24 – 48 hrs) LC<sub>50</sub> = 186 mg/L

Biological safe concentration is 56 mg/L

At 310 mg/L there was 90% mortality in 24 – 48 hrs

At 36 mg/L pH 5.4 there was 100% survival over 48 hrs

**SECTION 13 – DISPOSAL CONSIDERATIONS**

\*\*\*\*\*

Comply with Federal, State, and local regulations. If approved, may be neutralized and flushed to wastewater treatment plant. Product is biodegradable, no discharge limitations are required.

Material that cannot be used or chemically reprocessed and empty containers should be disposed of in accordance with all applicable regulations. Product containers should be thoroughly emptied before disposal. Generators of waste material are required to evaluate all waste for compliance with RCRA and any local disposal procedures and regulations. NOTE: State and local regulations may be more stringent than federal regulations.

-----  
**SECTION 14 – TRANSPORTATION INFORMATION**  
-----

**DOT Shipping Description:** Not regulated as a hazardous material by the US Dept. of Transportation (DOT) 49CFR 172.101 Hazardous Materials Table

U.S. Custom Harmonization #: 3402.90

**Canadian TDG:**

Hazard Class: Non-Hazardous

Label Requirements: None Required

Reportable Quantity: None

-----  
**SECTION 15 – REGULATORY INFORMATION**  
-----

NSF Certified for use in well cleaning, pipe line cleaning, and filter cleaning

RCRA Status: Not a hazardous waste under RCRA 40 CFR 261. No reportable quantities.

SARA/TITLE III-CERCLA List: This product does not contain a “CERCLA” listed hazardous substance for emergency release notification under Sec. 304 (40CFR 302).

SARA/TITLE III-Toxic Chemicals List: This product does no contain a toxic chemical for routine annual “Toxic Chemical Release Reporting” under Sec. 313 (40CFR 372).

TSCA Inventory Status: Chemical components listed on TSCA Inventory.

California Proposition 65: This product does not contain any chemicals currently on the California list of known carcinogens and reproductive toxins.

Canadian WHMIS Classification: This product does not contain any hazardous materials under CPR and this MSDS discloses all information elements required by the CPR.

**SECTION 16 – OTHER INFORMATION**

---

**Disclaimer:** The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the user thereof. It is the buyer's responsibility to ensure that its activities comply with federal, state, provincial and local laws.

**Created by:** Ida Goldstein