

		Salt Warehouse Area Manual		Ogden Site	
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AREA MANUAL

SALT PLANT WAREHOUSE AREA



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1. Process Description:

1.1 Area Process Systems Detail:

1.1.1 FRONT END OPERATOR PROCESS FLOW:

- a) The front end operator uses a forklift to stock the packaging floor and to take away the finished products that do not travel to the warehouse on the pallet conveyor. The operator is responsible to be aware of the appropriate storage location for all products handled during a shift in order to ensure that products are stored appropriately.

WIP In locations exist for each of the packaging lines and it is the front end operator's responsibility to ensure that the areas are stocked with the raw materials needed for the scheduled production requirements. At times, especially during the beginning of a shift, the production requirements fluctuate and the front end operator must rely on communication with management and packaging operators to ensure that the WIP In areas are stocked appropriately. In addition, the operator stocks the palletizers, Line 7, and the block presses with pallets.

Mineral premix and mineral oil surge bins are delivered to the chain hoist area by the front end operator. As time permits, the operator may lift the premix to the mineral floor using the hoist. Lifting mineral oil surge bins requires separate training and the production operator must be involved in the lifts until an operator receives specific instruction otherwise.

Packaging operators place empty pallets, waste, and other unneeded material in WIP Out locations, which the front end operator manages by removing the materials and either storing or disposing of them. The front end operator also empties dumpsters when they are full by disposing of clean salt in the clean dump on the north side of H904 and disposing of dirty salt in the mineral dump on the north side of the north block tent.

The front end operator removes restacked pallets of bags and, on rare occasions, other completed pallets of bags that must bypass the typical pallet conveyor system. These pallets require placards with the lot code since the wrapped pallets will not run past the lot code printer. If pallets taken to the warehouse are unwrapped, the operator wraps them using SW510 Stretch Wrapper, located in the warehouse. The operator must then insert the lot code placard into the plastic wrap and store the pallet in the designated location, as is seen on the storage map.

1.1.2 STORAGE OPERATOR PROCESS FLOW:

- a) Pallets of bags move from the packaging floor to the warehouse, traveling down C590M37 through C590M44. They pass by the lot code printer, which the operator sets up to spray the lot code onto the pallets. The storage operator is responsible for changing the lot code at the beginning of each shift. The operator must know the appropriate storage location for all products handled during a shift in order to ensure that products are stored appropriately.

The storage operator uses the warehouse map to determine where products should be stored and updates the map to accommodate the storage fluctuations that occur regularly.

After determining the proper location for a product, the storage operator takes one to two pallets at a time to the correct bay. Warehouse bays are broken into smaller segments referred to as stows. New product is placed in the stow that has the newest lot codes. Operators who are responsible for shipping product pull pallets from the stow that has the oldest lot codes. This technique ensures that the oldest product is used first.

1.1.3 TRUCK LOADING OPERATOR PROCESS FLOW:

- a) Truck loading operators are responsible for retrieving pick tickets from the warehouse office and loading both vans and flatbeds according to the pick tickets. Trucks are inspected before being loaded to ensure product is not damaged during transport.

Operators use the warehouse map to determine where products are stored so they know where to pull from for shipping. After determining the location of a product, the operator goes to the appropriate bay and finds the stow with the oldest lot codes. In proper bay management, one stow is designated for storage (in) and a different stow is designated for shipping (out) in order to ensure that the oldest product is used first.

The truck loading operator carries one to two pallets at a time to the staging area where pallets are staged and inspected prior to loading. Operators verify all lot codes in the load during the inspection. They then place the pallets on/in a truck using a combination of established truck loading patterns, driver requests, and an experience-driven evaluation of the plausibility of the driver requests. Most of the time, pallets are loaded singly on trucks rather than stacked.

1.1.4 RAIL LOADING OPERATOR PROCESS FLOW:

- a) Rail loading operators are responsible for retrieving pick tickets from the warehouse office and loading railcars according to the pick tickets.
- b) Operators lock out the rail after the rail crew spots cars. The operators inspect boxcars before being loaded to ensure product is not damaged during transport.

Operators use the warehouse map to determine where products are stored so they know where to pull from for shipping. After determining the location of a product, the operator goes to the appropriate bay and finds the stow with the oldest lot codes. In proper bay management, one stow is designated for storage (in) and a different stow is designated for shipping (out) in order to ensure that the oldest product is used first.

The rail loading operator carries one to two pallets at a time to the staging area where pallets are staged and inspected prior to loading. Generally, rail loads are staged, inspected, and loaded in phases rather than staging the entire load before placing the pallets on the boxcar. The operator stacks pallets two high in boxcars but does not stack pallets inside intermodal containers. Dunnage and airbags are used to secure loads.

2. Process Control Variables:

2.1 Controlling the Process:

2.1.1 General

- a) The salt warehouse major equipment is operated with manual controls and e-stops.
- b) Some of the adjustments the warehouse operators can make using these controls are:
 - Starting and stopping machinery
 - Opening and closing dock doors
 - Locking and unlocking vans from the dock
 - Equipment adjustments

2.2 Process Variables:

2.2.1 Truck and rail loading rely on the availability of the needed products.

2.2.2 Damaged or dirty boxcars/trucks must be rejected, reducing productivity.

2.2.3 Late or inaccurate deliveries to the warehouse may result in a shortage of raw materials and products.

2.2.4 Low product quality causes delays.

- a) Incorrect lot codes must be researched and adjusted when they are discovered, generally while a truck is waiting to receive the product.
- b) NCM must be quarantined, labeled, and managed.
- c) Poorly stacked pallets must be restacked and rewrapped.
- d) Returned product is detrimental to customer relations and must be quarantined, labeled, and managed.

2.2.5 Warehouse organization allows for ease of storage, management, and shipment of product.

- a) Poor organization interferes with productivity.

3. Quality Control Specifications and Descriptions:

3.1 Sampling Requirements:

3.1.1 RANDOM QUALITY TESTING:

- a) The Salt Plant Training and Quality Supervisor performs random quality testing on blocks and bags.

- b) When requested, the warehouse operators assist by opening the desired pallet for testing. When testing a pallet of blocks, the supervisor takes the whole block. When testing bagged salt, the warehouse operator will open the bag and allow the supervisor to take salt from it.
 - The open bag must be disposed of and the pallet must be restacked and re-wrapped.

3.2 Quality Control of Raw Material:

- 3.2.1 The quality controls of raw materials for all other areas of the salt plant combine to provide quality controls for the warehouse. In addition to the quality checks performed by other areas:
 - a) Materials received by the warehouse are inspected for condition at the time they are offloaded.
 - b) The lot code of each pallet of mineral premix is compared to a list of lot codes that passed quality inspections. This ensures that the minerals to be added to salt meet legal and quality standards.
 - c) A pallet inspection is performed on each shipment of new or used white wood pallets.
 - A minimum of five pallets and all suspect pallets are inspected in each shipment, using a pallet inspection tool that indicates the appropriate measurements for the pallets.
 - d) All products received from the packaging floor are inspected for:
 - Broken or incorrect pallets
 - Leaking bags
 - Dirt

3.3 Quality Control of Outgoing Material:

3.3.1 QUARANTINE/NCM AREA:

- a) All NCM or other products/material that do not meet quality standards are physically separated from all other products when possible by placing them in the NCM area. The products are also labeled with a copy of the NCM or direct material report, which explains the reason for quarantine.

When it is not possible to place products/material in the NCM area, they are set apart in the warehouse through the use of quarantine tape.

3.3.2 STORAGE STANDARDS:

- a) Products stored in the warehouse are kept in rows with approximately one foot between each row. This distance allows operators to pick up pallets without hitting or otherwise damaging surrounding pallets while maximizing the limited space in the warehouse.
- b) The height of stacks of pallets is controlled for quality as well as safety purposes. Overly-tall stacks and those that are stacked crooked are prone to break pallets due to excessive weight and to tip over, damaging product.
 - Pallets of bags are stacked three high except along the pallet conveyor and the road/pedestrian walkway on the east side of the plant, where they are only stacked two pallets high.
 - Pallets of blocks are stacked four high.
 - Totes are not stacked.

3.3.3 WALK-AROUND INSPECTION:

- a) Before loading railcars or trucks, pallets are inspected for:
 - Bag alignment
 - Damage
 - Cleanliness (eg. bugs, dirt, mud)
 - Pallet condition
 - Stretch wrap and top cap condition

3.4 Factors Affecting Quality:

3.4.1 Pallets that sit in the warehouse too long accumulate dust which decreases the aesthetic appearance of the product.

- a) Dirty pallets must be re-wrapped.

3.4.2 Moisture:

- a) Moisture can seep into the pallet when the stretch wrap has holes or is otherwise insufficient. It is mainly a problem for pallets exposed to the elements outside the warehouse, but even pallets inside can become damp.
- b) Another cause of moisture is heat trapped in the bags. Salt is generally still hot from the dryer when it is bagged. During the winter, that heat can cause condensation on the bags.

4. **Equipment Descriptions:**

4.1 **Equipment:**

4.1.1 See *2000A.xx Salt Plant Equipment Manual*

- a) The manual is made up of eight sections.
 - Sections one through six detail the equipment used from the salt wash area through salt packaging.
 - Section seven details the equipment used in the salt warehouse.
 - Section eight details the equipment that is shared throughout the salt plant.

5. **Troubleshooting Table:**

5.1 **Troubleshooting Table:**

5.1.1 Currently, no troubleshooting table is deemed necessary for warehouse positions.

6. **Hazards:**

6.1 **Process Hazards:**

6.1.1 **PALLETS:**

- a) *Broken Pallets:*
 - Broken pallets or pieces of pallets can be dangerous. Stepping, kneeling, or pressing a hand against an unseen nail or jagged pallet edge can lead to injury.
 - o Move all broken pallets to the broken pallet location near the end of the pallet conveyor as soon as they are discovered.
 - o Discard all pieces of pallets when they are found.
 - o Use caution when stooping, kneeling, or otherwise touching the floor to avoid injury.
- b) *Leaning Pallets:*
 - Overly-tall or leaning stacks of pallets are safety hazards for anyone passing by them. The pallets may fall or cause operators to hit their head on overhanging pallets.
 - o Never stack pallets higher than warehouse policy allows.
 - o Stack pallets carefully, keeping stacks as straight as possible.
 - o Leaning stacks of pallets must be addressed promptly.

6.1.2 DUST:

- a) Salt dust compounds typical warehouse dust to coat walkways and railings, increasing operator risk of falling.
 - Walk (never run) in the warehouse.
 - Take corners slowly when driving moving equipment.

6.1.3 GARBAGE AND DEBRIS:

- a) Tripping hazards occur in the warehouse when debris of any sort litters walkways.
 - Pick up debris and dispose of or store it properly.

6.2 Environment Hazards:

6.2.1 WEATHER:

- a) Operators are continually exposed to the weather while performing job tasks. The following weather situations pose potential hazards:
 - Cold weather causes problems for operators and equipment.
 - o Wear warm clothing.
 - o When working in the elements, take frequent breaks in a warm place.
 - Hot weather can cause heat stress and heat exhaustion, especially when working around hot machines.
 - o Take frequent breaks in a cool place.
 - o Drink a lot of water.
 - Rain, snow, and ice cause slippery floors, increasing the risk of falling or of moving equipment to lose traction.
 - o Clear snow from all walking or driving areas as early as possible.
 - o Salt ice to encourage melting.
 - o Salt the warehouse floor to increase traction.
 - o Walk cautiously, paying attention to footing.
 - o Slow down when driving moving equipment.

6.2.2 OIL SPILLS:

- a) Forklifts and other equipment may leak oil, leaving floors slippery.
 - Clean up spills as soon as they are found.
 - Keep equipment in good repair.

6.2.3 BROKEN WATER PIPES:

- a) Breaks in pipes can range from small breaks which cause a slow drip to large breaks which cause flooding.
 - Report pipe breaks to maintenance as soon as they are noticed.
 - Use extra caution when walking or driving on wet surfaces.

6.2.4 WILDLIFE:

- a) Avoid wild animals whenever possible. Do not approach wildlife.
- b) Contact the warehouse or shift supervisor if an animal must be removed from the plant.
- c) Interactions with deer, foxes, snakes, feral cats, rock chucks, mice, birds, bats, insects, spiders, and other wildlife have occurred on site.
 - Watch hand placement in areas where there are spiders.
 - o During certain seasons, spiders may be found nearly anywhere.
 - Watch footing when outside. Be alert to the possibility of snakes.
 - Insects and spiders are the most common wildlife problem at the plant. Combat them by wearing long sleeves and using bug spray.
- d) See **7242.xx Wild Animal Handling** for further information.

6.2.5 SINKHOLES:

- a) Sinkholes can occur on site, though they are rare.
 - Take a two-way radio when dumping salt or the sweeper dust hopper to ensure that if you become stuck in a sinkhole, you can ask the warehouse or shift supervisor for help.

6.3 Equipment Hazards:

6.3.1 AIR HOSES:

- a) All air hoses must have a directional diffuser attachment in order to operate the air safely.
- b) Do not use an air hose with a missing or broken attachment.

6.3.2 LOADING TRUCKS:

- a) When loading flatbed trailers, vans, and shipping containers, it is essential to follow proper techniques regarding:
 - Docking (for vans)
 - Pre-loading inspection
 - Wheel chocks (for any truck not locked in at the dock)
 - Truck driver rules

6.3.3 LOADING BOXCARS:

- a) When loading boxcars, it is essential to follow proper techniques regarding:
 - Rail isolation
 - Boxcar position
 - Opening/closing boxcar doors

6.3.4 STRETCH WRAPPER:

- a) The manual stretch wrapper is not enclosed. Stand clear while operating this equipment. Do not use excessive speed or tension.

6.3.5 PALLET INVERTER:

- a) Pallets may only be inverted safely if they are already wrapped in stretch wrap. Unwrapped pallets will fall apart when they are turned upside down, causing bags to fall and increasing the chance of injury.
Stand clear of the inverter while it is moving.

6.3.6 PALLET CONVEYOR:

- a) The pallet conveyor repeatedly starts and stops, which can potentially lead to falling pallets. Monitor pallets as they move down the pallet conveyor. If a pallet is leaning or on the edge of the conveyor, address the pallet immediately.
- b) Pinch points occur when working around the pallet conveyor. Use caution to avoid touching or brushing against any moving part.

6.3.7 BALER:

- a) The baler chains and gates cause pinch points. Keep hands and clothing free of moving parts while operating the equipment.

- b) Bales are heavy and when they are ejected they fall out of the machine.
 - Be aware of the position of the forklift in front of the baler to ensure that the bale will land on the forks.
 - Know where other operators are in the area to avoid potentially hitting someone who may be walking in front of the machine.
- c) Baling wire can become a cutting hazard due to the force used while pulling it tight on the bale. Without gloves, the wire can cut into hands.
 - Wear leather or cutting gloves to protect your hands while creating a bale.
- d) If bending becomes necessary while creating the bale, bend at the knees and avoid twisting. Working with the back at awkward angles can cause injury even when not lifting.

6.3.8 COMPACTOR:

- a) The compactor step creates a tripping hazard if operators become distracted and forget to watch for it.
 - Use cautious footing while working on or near the step leading to the compactor. Falling over the step or into the compactor can lead to injury even when the machine is not running.

6.3.9 OPERATING MOVING EQUIPMENT:

- a) A large portion of the warehouse operator's day is spent using moving equipment in tight spaces.
 - Obey all forklift policies learned in training.
 - Perform a pre-operation inspection on all moving equipment.
 - Watch for pedestrians and other equipment operators.
 - Be aware of conditions that limit control such as slick floors or faulty equipment.
 - Pay attention to the surroundings at all times.

6.3.10 WORKING AROUND MOVING EQUIPMENT:

- a) When moving around the warehouse, there are many types of moving equipment to be aware of. Both drivers and pedestrians must follow the site policies regarding interaction with moving equipment and watch for:
 - Forklifts
 - Sweeper
 - Trains
 - Trucks

- b) While loading trucks or railcars, pay particular attention to the position of the forklift in relation to the dock in order to ensure that no accidents occur.

6.4 Chemical Hazards:

6.4.1 ANTIFREEZE:

- a) Avoid inhalation, eye contact, and ingestion.
 - Inhalation causes respiratory distress. Get the victim to fresh air and seek emergency medical attention.
 - Eye contact can cause serious damage. Flush eyes with large amounts of water for at least 15 minutes. Seek emergency medical attention.
 - Ingestion can be fatal. Do not induce vomiting. Give two glasses of water to the victim and seek emergency medical attention. If medical help is delayed, give three to four ounces of hard liquor to the victim.
- b) See the SDS for more details.

6.4.2 BATTERY ACID:

- a) Avoid inhalation, skin/eye contact, and ingestion. When adding water to the standing forklift, use extreme caution because acid can splash into your face.
 - Inhalation can cause respiratory irritation. After inhalation, remove the victim to fresh air.
 - Contact with skin can cause severe burns and contact with the eye can cause blindness. Flush the eye and any exposed skin with water for at least 15 minutes and then seek emergency medical attention.
 - Ingestion can lead to internal burns, pain, nausea, vomiting, and diarrhea. Seek medical attention.
- b) See the SDS for more details.

6.4.3 CHAIN AND WIRE ROPE LUBRICANT:

- a) Avoid inhalation, eye contact, and ingestion.
 - Inhalation may lead to respiratory disease. Remove the victim to fresh air and seek medical attention if symptoms persist.
 - Eye contact causes redness and irritation. Flush the eyes for at least 15 minutes, remove contacts, and then continue rinsing. Seek medical attention if irritation persists.

- Ingestion causes digestive problems. Do not induce vomiting. Seek medical attention immediately.
- b) See the SDS for more details.

6.4.4 ENGINE OIL:

- a) Avoid inhalation, skin/eye contact, and ingestion.
- Inhalation may lead to respiratory disease. Remove the victim to fresh air.
 - Contact with skin or eyes can cause irritation. Rinse for at least 15 minutes. Seek medical attention if irritation persists.
 - If ingested, rinse with water but do not induce vomiting. Seek medical advice.
- b) See the SDS for more details.

6.4.5 GLASS CLEANER:

- a) Avoid inhalation, eye contact, and ingestion.
- Inhalation may lead to mild irritation. Remove the victim to fresh air.
 - Eye contact can cause damage. Flush the eyes for 15 minutes and then seek medical attention immediately.
 - If ingested, drink large amounts of water. Do not induce vomiting. Seek medical attention immediately.
- b) See the SDS for more details.

6.4.6 HYDRAULIC OIL:

- a) Avoid inhalation and skin/eye contact.
- Inhalation causes respiratory irritation. Remove the victim to fresh air.
 - Skin or eye contact can lead to irritation. Flush with water. Seek medical attention if the irritation persists.
- b) See the SDS for more details.

6.4.7 INSECT REPELLENT:

- a) Avoid eye contact.
 - Minor irritation may occur with eye contact. Rinse the eyes cautiously for several minutes. Remove contact lenses, and then continue rinsing.
- b) See the SDS for more details.

6.4.8 JET INK CLEANER:

- a) Avoid inhalation, skin/eye contact, and ingestion.
 - Minor irritation may occur if the cleaner is inhaled or comes into contact with the skin or eyes. Move the victim to fresh air and rinse any cleaner from skin/eyes.
 - Ingestion causes nausea and vomiting.
- b) See the SDS for more details.

6.4.9 JET PRINTER INK:

- a) Avoid eye contact and ingestion.
 - Eye contact may be irritating. Rinse with water for at least 15 minutes and then seek medical attention.
 - Ingestion is harmful. Rinse the victim's mouth; do not induce vomiting. Seek medical attention immediately.
- b) See the SDS for more details.

7. Glossary:

- 7.1 Bay:** The segment of the warehouse where goods are stored.
- 7.2 Bill of Lading (BOL):** Document that details the merchandise in a shipment and gives authorization to the transporter for shipment.
- 7.3 Direct Material Quality Incident:** Often referred to as ‘direct material,’ problematic raw materials that do not meet quality standards.
- 7.4 First In First Out (FIFO):** A technique for storing products in bays with rotating stows. The oldest products are pulled from one stow while the newest products are placed in another stow.
- 7.5 Non-Conforming Material (NCM):** The pallets of product that do not conform to standard.
- 7.6 Private Cars:** Railcars, generally 60 feet long, owned or leased by Compass Minerals. The car identification numbers begin with the alpha-prefix CIBX or BLHX.
- 7.7 SKU:** Stock keeping unit, a product identification that allows for inventory tracking.
- 7.8 Stow:** The portion of a bay that is designated for storage (in) or shipping (out). Standard stows contain two rows each and standard bays contain three stows.
- 7.9 System Cars:** Railcars, generally 50 or 52 feet long, owned by customers and sent to Compass Minerals to be loaded. The car identification numbers generally begin with the alpha-prefix SP, RBOX, or ABOX.

8. Drawings/Digital Photos:

8.1 2001A.xx Salt Plant General Diagrams

8.1.1 *2001A14.xx Salt Warehouse Safety Plot Plan*

8.2 2001E.xx Salt Plant Warehouse Diagrams and Drawings

8.2.1 *2001E1.xx Warehouse Map*

8.2.2 *2001E2.xx Boxcar Loading Patterns*

8.2.3 *2001E3.xx Van Loading Patterns*

8.2.4 *2001E4.xx Flatbed Loading Patterns*

8.2.5 *2001E5.xx Packaging Goods Identification*