Blue Book

Department of Environmental Quality
Office of Oil, Gas, and Minerals

03 – Supervisor’s Instructions

STATE OF MICHIGAN

NATURAL RESOURCES COMMISSION
JACOB A. HOEFER
E. M. LAITALA
HILARY F. SNELL
PAUL H. WENDLER
HARRY H. WHITELEY
JOAN L. WOLFE
CHARLES G. YOUNGLOVE

WILLIAM G. MILLIKEN Governor

DEPARTMENT OF NATURAL RESOURCES

STEVENS T. MASON BUILDING
BOX 30028
LANSING, MI 48909
HOWARD A. TANNER Director

ATTENTION: All oil and gas producers, owners, operators and drilling contractors

DISPOSAL OF BRINES AND SALT CUTTINGS

Effective May 1, 1981 applicants for oil and gas well drilling permits shall address the generation, containment, method of handling and disposal of brines and salt formation cuttings in the Environmental Impact Assessment which accompanies the application for permit.

Declarations shall include both the handling, containment and disposal of brines employed as drilling fluids and brines produced from the operation of the proposed well. The means, methods, schedule and disposal location will be described.

Howard A. Tanner

Howard A. Tanner, Director
and
Supervisor of Wells

Dated: April 6, 1981

Inst. 3-81

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES

Supervisor of Wells Instruction 1-92
Supervisor of Mineral Wells Instruction 1-92

Utilization of Survey Instruments Relating to Naturally Occurring Radioactive Materials (NORM)

The following instructions are issued to identify the approved protocol and instruments to be used pursuant section 3 of the "Determination and Order" of Supervisor of Wells Order 3-6-92 and Supervisor of Mineral Wells Order (M) 1-6-92.

1. Specifications for Survey Instruments: Survey instruments for measuring gamma radiation levels shall meet at least the following specifications:

A. Provide a measurement in either microRoentgens per hour or in units which can be converted to microRoentgens per hour without making special assumptions about factors which have an effect on the gamma radiation field.

B. Capable of measuring radiation levels from one through at least 5,000 microRoentgens per hour. Portable hand held scintillation detectors or pressurized ion chamber detectors are acceptable.

C. Capable of operating in an environment having temperatures from 0 through 100 degrees Fahrenheit and up to 95 percent relative humidity.

D. Response time of less than 4 seconds for all but the most sensitive scale and response time of 15 seconds or less for the most sensitive scale.

E. Calibrated according to the schedule recommended by the manufacturer. Calibration shall be performed by the manufacturer or other qualified person to an appropriate gamma radiation field such that accuracy is within plus or minus 20 percent of actual. Owners of instruments shall maintain records of calibration for inspection by the Supervisor, showing date of calibration and who performed the calibration.

2. Use of Hand Held Survey Instruments:

A. Since the response time of most hand held survey instruments is relatively long, all surveys shall be made carefully to ensure that not any area having elevated levels of gamma radiation is missed.

B. Instruments which read in microrem per hour can be assumed to read equivalently in microRoentgens per hour.

C. Survey instrument performance shall be checked daily during the survey process by following the manufacture's recommendations or by checking radiation response to a small radiation source that is exempt from regulatory control.

D. Radiation survey instruments shall be operated by personnel trained in the proper use of such equipment.

E. All readings shall include the total radiation level as measured by the instrument including the local average natural background radiation. The local average natural background radiation shall be the average of measurements made at a minimum of two locations, including one within the field site as far as possible from any elevated radiation levels and the other at a location just off site and away from the first location. Natural background measurements shall be made by positioning the detector between 6 and 36 inches above the ground surface and recording the measurement after no less than 60 seconds have passed.

F. Measurements on tubulars and other down hole equipment shall be made by placing the detector as close as possible to, without contacting, the exterior surface. Measurements of each piece of material shall be made at each end and mid-point. The measurement at each point shall be recorded after no less than 30 seconds have passed. The highest of the 3 measurements shall be used to determine if the 50 microRoentgens per hour level has been exceeded or equalled.

THIS SUPERVISORS' INSTRUCTION IS EFFECTIVE ON NOVEMBER 3, 1992.

R. Thomas Segall

R. THOMAS SEGALL
ASSISTANT SUPERVISOR OF WELLS
SUPERVISOR OF MINERAL WELLS

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES

SUPERVISOR OF WELLS INSTRUCTION 1-94
CERTIFICATION OF CASING AND SEALING OF SURFACE CASING

INTRODUCTION

The Supervisor of Wells Act, 1939 PA 61, as amended (Act 61), prohibits oil field practices which may cause pollution, damage to or destruction of fresh water supplies. The purpose of these instructions is to further ensure the protection of fresh ground water. For all wells drilled pursuant to Act 61 after the effective date of these instructions, the Supervisor of Wells will require that a knowledgeable geologist or mud logger determine the proper depth to set surface casing to ensure that the casing will properly seal and protect all fresh water aquifers. The following requirements are issued in conjunction with and in addition to the provisions of Rule 301, 302, 303, 306, and 309 of the Rules promulgated pursuant to Act 61 (Rules), Supervisor's Instruction No. 1-87 (S.I. 1-87) and Special Order No. 2-73, amended (S.O. 2-73). This Instruction shall become effective January 15, 1994.

INSTRUCTION

1. Casing shall be run from the surface to a depth no less than:

   a. 100 feet into competent bedrock and
   b. 100 feet below all fresh water aquifers occurring below the glacial drift.

The casing shall be cemented in accordance with the Rules, S.O. 2-73, S.I. 1-87, and Supervisor of Wells requirements.

2. Each application and permit to drill shall provide geologic and depth information necessary to comply with the surface casing requirements stated in #1 above.

3. A knowledgeable geologist or mud logger on site shall determine the proper depth as provided in item #1 at which to set surface casing. To further ensure the protection of fresh ground water supplies, the running of casing and the cementing operation shall be supervised by the drilling rig tool pusher and/or a qualified representative of the permittee.

4. The geologist or mud logger shall enter into the drilling rig daily log book the following:

   a. The depth to bedrock.
   b. The base of other fresh water aquifers as specified by the permit to drill.
   c. The total depth of the surface casing hole.
   d. The signature and name of the geologist/mud logger.

5. The drilling rig tool pusher or qualified representative of the permittee shall enter in the drilling rig daily log book the following:

   a. Depth where surface casing was set.
   b. Amount and volume of cement used.
   c. Amount and volume of cement circulated to surface.
   d. Amount and volume of additional cement used if grouted.
   e. Any problems encountered while running or cementing the surface casing.
   f. The signature and name of the person certifying this information.

6. Within thirty days of the completion of the drilling operation, the permittee of the drilling operation shall furnish a certification of the proper sealing and protection of fresh water aquifers on a form prescribed by the Supervisor of Wells. The certification shall be signed by the geologist or mud logger who determined the depth to set the surface casing and by the permittee or a company officer. The certification shall describe any unusual hole conditions or problems encountered during the drilling or while running or cementing the casing.

Date: 12/15/93

R. Thomas Segall

R. THOMAS SEGALL
ASSISTANT SUPERVISOR OF WELLS

STATE OF MICHIGAN
DEPARTMENT of NATURAL RESOURCES

GEOLOGICAL SURVEY DIVISION
PO BOX 30256
LANSING MICHIGAN 48909 - 7756

CERTIFICATION OF CASING AND SEALING OF SURFACE HOLE

REQUIRED BY AUTHORITY OF: ACT 61, P.A. 1939, AS AMENDED NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFORMATION MAY RESULT IN FINES AND/OR IMPRISONMENT.

PERMIT NUMBER

WELL NAME

SURFACE LOCATION

1/4 OF 1/4 OF 1/4, SECTION T R

TOWNSHIP COUNTY

NAME AND ADDRESS OF PERMITTEE

NAME AND ADDRESS OF DRILLING CONTRACTOR

SURFACE HOLE

HOLE DIAMETER (NOTE REDUCTIONS)	DEPTH TO BEDROCK	BASE OF SPECIFIED AQUIFER (See Permit)	TOTAL DEPTH OF SURFACE HOLE	FORMATION AT SURFACE CASING SEAT	DATE DRILLING COMPLETED

NARRATIVE OF UNUSUAL DRILLING CIRCUMSTANCES OR PROBLEMS ENCOUNTERED

NAME AND ADDRESS OF GEOLOGIST/MUD LOGGER

DATE

SIGNATURE

SURFACE CASING

CASING O.D. (IN)	CASING DEPTH (FT)	CEMENT TYPE AND ADDITIVES	AMOUNT OF CEMENT (SKS)	VOLUME (BBLS)		PLUG DOWN DATE & TIME
				PUMPED	Returned To Surface	

NARRATIVE OF PROBLEMS ENCOUNTERED RUNNING OR CEMENTING CASING. NOTE ANY CEMENT FALLBACK OR GROUTING.

I AM RESPONSIBLE FOR THIS REPORT. THE INFORMATION IS COMPLETE AND CORRECT.

DATE

SIGNATURE OF PERMITTEE OR COMPANY OFFICER

SUBMIT THE ORIGINAL AND ONE COPY, TYPEWRITTEN OR LEGIBLY PRINTED, WITHIN 30 DAYS AFTER DRILLING IS COMPLETED.

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

SUPERVISOR OF WELLS INSTRUCTION 1-97

DISPOSAL OF PRODUCED GAS FROM
OIL AND GAS FIELD OPERATIONS

PURPOSE

The purpose of Supervisor of Wells Instruction 1-97 is to prevent the release of hydrogen sulfide (H_2S) gas associated with oil and gas production operations in quantities which result in, or may result in, pollution or a threat to human health and safety.

Administrative rules promulgated pursuant to Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), impose certain restraints on the release of gas associated with the operation or testing of wells. R 324.1010 states:

> "A permittee of a well shall ensure that all gas produced in the operation or testing of wells that is not utilized is burned, processed, or disposed of in a manner consistent with these rules and all applicable state and federal laws and regulations. The gas shall not be burned closer than 100 feet from a well or storage tank or 300 feet from structures used for public or private occupancy or from any other flammable and combustible material."

This Supervisor's Instruction 1-97 clarifies the meaning of
"... *disposed of in a manner consistent with these rules* ..." in R 324.1010

BACKGROUND

The administrative rules promulgated pursuant to Part 615 of the NREPA address the disposal of produced gas under several circumstances. The general statutory requirement to prevent waste is articulated in R 324.504, which states:

> "A person shall use every reasonable precaution to stop and prevent waste. ... An operation shall not be commenced or continued at a location where it is likely that a substance may escape in a quantity sufficient to pollute the air, soil, surface waters, or groundwaters, until the permittee has complied with the methods and measures to prevent pollution as specified by the supervisor."

For gas from wells other than H_2S wells, a method of disposal may be acceptable if it meets the general requirement to prevent waste in accordance with R 324.504, and if it is not specifically prohibited by the rules or by an Order of the Supervisor of Wells. However, disposal of gas from H_2S wells poses special hazards due to the toxic and noxious nature of H_2S, and must be subject to more stringent and specific conditions.

R 324.1101(g) defines H_2S wells:

> "'H_2S well' means a well that contains a hydrogen sulfide content in the gas of not less than 300 ppm."

There are several provisions in the rules which relate to disposal of gas from H_2S wells. Gas that is not utilized is an oil or gas field fluid waste which may be injected into a disposal well under R 324.703, which states in part:

> "A permittee of a well shall inject oil or gas field fluid wastes, or both, into an approved underground formation in a manner that prevents waste. . . ."

Release of gas from storage vessels associated with an H_2S well is subject to R 324.1122, which states in part:

> ". . . . (2) If a storage vessel releases a total 24-hour volume of 5 mcf or more of vapors, then a permittee of a well shall ensure that the vessel is equipped with a vent line for conveying the released gasses and vapors to an incinerator, flare, or vapor recovery system . . . .
>
> . . . . (4) If a storage vessel releases a total daily volume of 5 mcf or less of vapor, then it may be vented to the atmosphere if the vent is located not less that 10 feet above the tank top and if the opening of the vent is within the diked area or not less than 20 feet above the ground if the opening of the vent is outside the diked area. The supervisor may prohibit venting of vapor to the atmosphere if a verified chronic nuisance odor results from the sulfur-bearing compounds being vented. . . ."

Release of gas from process equipment associated with an H_2S well is subject R 324.1124, which states:

> "A permittee of a well shall ensure that an emergency relief valve on process equipment is equipped with a line for conveying the released gasses or vapors to an incinerator or flare. The supervisor or authorized representative of the supervisor may grant an exception if the total daily volume of gas produced is less than 5 mcf."

INSTRUCTION

This Instruction is issued in addition to and in conjunction with the provisions of R 324.1010. After the effective date of this Instruction, all gas that is produced in conjunction with the operation or testing (including reworking, producing, and plugging) of an H_2S well and is not processed for sale shall be utilized or disposed of by one of the following methods:

1 Burning as fuel in a heated vessel in compliance with R 324.1121 of Part 615 of the NREPA; Part 55, Air Pollution Control, of the NREPA and promulgated rules; and all other applicable state and federal laws and regulations.

2. Burning in a flare or incinerator that complies with R 324.1010 of Part 615 of the NREPA, Part 55 of the NREPA and promulgated rules, and all other applicable state and federal laws and regulations.

3. Injection into an approved underground formation pursuant to R 324.612 or R 324.703 of Part 615 of the NREPA, as applicable, utilizing an injection well that meets the requirements of "Part 8. Injection Wells," of the administrative rules promulgated pursuant to Part 615 of the NREPA.

4. Venting to the atmosphere only as specified in R 324.1122(4) or R 324.1124 of Part 615 of the NREPA, provided such venting is in compliance with Part 55 of the NREPA and promulgated rules and all other applicable state and federal laws and regulations.

5. Disposal by other means as may be approved by the Supervisor pursuant to a specific request by the permittee and wherein the permittee demonstrates to the Supervisor that the manner of disposal shall prevent waste and shall not pose a threat to public health and safety. If required under the provisions of the applicable rules, approval by the Supervisor shall be subject to a hearing.

Any release to the environment of gas produced from an H_2S well other than the circumstances identified in Items 1 - 5 above shall be considered to be a violation R 324.1010 and is prohibited.

SUPERVISOR'S INSTRUCTION 1-97 IS EFFECTIVE ON JULY 15, 1997

Date: 6/16/97

Russell J. Harding
Supervisor of Wells

Fitch

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

November 10, 1997

TO: All Geological Survey Division Staff

FROM: Harold R. Fitch, Chief, Geological Survey Division

SUBJECT: Supervisor of Wells Instruction 2-97
Directional Drilling Under Waters of the Great Lakes

Attached is a copy of the recently issued Supervisor of Wells Instruction 2-97, entitled "Directional Drilling Under Waters of the Great Lakes." The purpose of Instruction 2-97 is to enhance the protection of the waters and shoreline environment of the Great Lakes in permitting oil and gas wells directionally drilled under the Great Lakes bottomlands, and in permitting associated surface facilities. This Instruction incorporates many of the findings and recommendations of the Michigan Environmental Science Board report entitled "Evaluation of Directional Drilling Under the Great Lakes."

Instruction 2-97 sets forth the criteria for setbacks, visual screening, and protection of certain sensitive environments. It also prohibits pits for disposal of mud and cuttings. This Instruction is effective immediately, and applies to all new and pending applications for permits for wells proposed to be directionally drilled under Great Lakes waters.

A notification letter is being sent to Oil and Gas Operators regarding Instruction 2-97 and two other documents. A copy of that letter has been copied on the back side of this memo for your reference.

Attachment

STATE OF MICHIGAN

JOHN ENGLER, Governor

DEPARTMENT OF ENVIRONMENTAL QUALITY

HOLLISTER BUILDING PO BOX 30473 LANSING MI 48909-7973

INTERNET: http://www deq state mi us

RUSSELL J HARDING Director

REPLY TO:

GEOLOGICAL SURVEY DIVISION
735 E HAZEL ST
PO BOX 30256
LANSING MI 48909-7756

November 10, 1997

TO: All Oil and Gas Operators

FROM: Harold R Fitch, Assistant Supervisor of Wells and Chief
Geological Survey Division

SUBJECT: Supervisor of Wells Instruction 1-97
Supervisor of Wells Instruction 2-97
Supervisor's Letter No 1997-1

Enclosed are copies of Supervisor of Wells Instruction 1-97, Disposal of Produced Gas from Oil and Gas Field Operations; Supervisor of Wells Instruction 2-97, Directional Drilling Under Water of the Great Lakes; and Supervisor's Letter No 1997-1, Total Petroleum Hydrocarbon (TPH) and Aesthetic Cleanup Criteria for Soil at Oil and Gas Facilities.

Supervisor of Wells Instruction 1-97, Disposal of Produced Gas from Oil and Gas Field Operations, clarifies the intent of administrative rules prevent release of harmful quantities of H2S from oil and gas producing or testing operations. The Instruction stipulates that sour gas cannot be released to the atmosphere except as allowed by exceptions within the administrative rules of Part 615 for tanks and process equipment. Questions on this Instruction may be referred to the appropriate District Geologist, or to Ray Vugrinovich at 517-334-6937.

Supervisor of Wells Instruction 2-97, Directional Drilling Under Waters of the Great Lakes, sets forth the criteria for siting of oil and gas wells directionally drilled to targets beneath the waters of the Great Lakes, and for siting of surface facilities associated with those wells. Applications for permits for such wells are subject to these new criteria. If you have questions regarding this instruction, you may contact Tom Wellman at 517-334-6062

Supervisor's Letter No. 1997-1, dated May 12, 1997, is being provided to you for informational purposes and describes standards for TPH and esthetic criteria for soil cleanups at oil and gas sites. These standards were developed by the Geological Survey Division (GSD) in cooperation with the Michigan Oil and Gas Association's Environmental Technical Subcommittee. Supervisor's Letter No 1997-1 may assist you in understanding how the GSD will implement these new standards. Should you have any questions regarding this Supervisor's Letter, please contact the District Geologist assigned to the county where the cleanup occurs.

Harold R. Fitch

cc: All GSD Supervisors w/o enclosures

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STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

Supervisor of Wells Instruction 2-97
Directional Drilling Under Waters of the Great Lakes

Purpose

The purpose of this Supervisor of Wells Instruction is to enhance the protection of the waters and shoreline environment of the Great Lakes in the process of siting oil and gas wells directionally drilled under waters of the Great Lakes, and in the siting of surface facilities associated with those wells

Background

The waters and shoreline areas of the Great Lakes comprise special and unique natural resources Oil and gas reserves are known to underlie the waters of the Great Lakes in some areas, and additional untapped reserves are suspected to exist Directional drilling is a proven technique for finding and extracting those reserves However, oil and gas drilling has the potential for conflicting with other uses of shoreline areas and creating unnecessary adverse impacts on these areas

Part 615. Supervisor of Wells, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA) directs the Supervisor of Wells to prevent waste. Part 615 of the NREPA defines waste as including, among other things, " unnecessary damage to or destruction of the surface; soils; animal, fish, or aquatic life; property; or other environmental values from or by oil and gas operations " [MCL 324 61501]

This Instruction sets forth the criteria for siting of oil and gas wells directionally drilled to targets beneath the waters of the Great Lakes, and for siting of surface facilities associated with those wells, in order to prevent waste

Instruction

After the effective date of this Instruction, a permit to drill and operate an oil or gas well shall not be issued for any well to be directionally drilled to a target beneath the waters of the Great Lakes unless the following conditions are satisfied

1 The proposed surface location of the oil or gas well and newly constructed surface facilities associated with the well shall be not less than 1,500 feet from the ordinary high water mark of the Great Lakes and connecting waters

2 No portion of the proposed new access roads associated with the well shall be less than 1,500 feet from the ordinary high water mark of the Great Lakes and connecting waters, unless there are existing roads within 1 500 feet of the ordinary high water mark from which an access road may be extended

3 On land that is zoned primarily for residential or recreational purposes at the time the application for permit is submitted, or on land owned by the State of Michigan and managed primarily for recreational or public access purposes, the proposed oil or gas well, and the proposed surface facilities associated with the well, shall not be visible from the shoreline or from areas maintained for public recreation contiguous to the shoreline of the Great Lakes or connecting waters This condition may be satisfied by natural topographic barriers, berming, or vegetative screening.

4 The proposed surface location of the oil or gas well, and the proposed location of newly constructed surface facilities and access roads associated with the well, shall not be located within any of the following:

a. An "environmental area" as that term is defined in Part 323, Shorelands Protection and Management, of the NREPA.

b. The setback from the bluffline in a "high-risk area" as designated by the Department of Environmental Quality under the provisions of Part 323 of the NREPA

c. A "critical dune area," as that term is defined in Part 353 Sand Dunes Protection and Management, of the NREPA

5 The proposed surface location of the oil or gas well, and the proposed location of newly constructed surface facilities associated with the well, shall not be located within a "flood risk area" as that term is defined in Part 323 of the NREPA, if there is a feasible and prudent alternative location at which they may be located If there is no feasible and prudent alternative location, an area for a 25-foot radius around the wellhead, and all secondary containment areas at surface facilities, shall be constructed so the elevation is at least one foot above the 100-year floodplain of a Great Lake or connecting waterway

6 An excavated pit shall not be utilized for the disposal of drilling mud and cuttings

This Instruction is issued in addition to and in conjunction with all other applicable provisions of Part 615 of the NREPA, and all applicable administrative rules promulgated thereunder.

THIS INSTRUCTION IS EFFECTIVE NOVEMBER 7, 1997

Date: 11/7/97

RUSSELL J HARDING
SUPERVISOR OF WELLS

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

SUPERVISOR OF WELLS INSTRUCTION 1-2001

Nuisance Odor Standard for Hydrogen Sulfide at Wells and Surface Facilities

Purpose

Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and administrative rules promulgated thereunder, prohibit emission of gas from a well or surface facilities in quantities that cause the unnecessary endangerment of public health, safety, or welfare. The purpose of Supervisor of Wells Instruction 1-2001 is to define the concentration of hydrogen sulfide (H_2S) in ambient air at the point of exposure that may cause injurious effects to human health.

Background

Rule 324.103 defines "nuisance odor" as follows:

> Nuisance odor means an emission of any gas, vapor, fume, or mist, or combination thereof, from a well or its associated surface facilities, in whatever quantities, that causes, either alone or in reaction with other air contaminants, injurious effects to human health or safety; unreasonable injurious effects to animal life, plant life of significant value, or property; or unreasonable interference with the comfortable enjoyment of life or property.

Rule 324.1013 prohibits nuisance odors:

> A person shall not cause a nuisance odor in the exploration for, or in the development, production, handling, or use of, oil, gas, or brine or in the handling of any product associated with the exploration, development, production, or use of oil, gas, or brine.

Rule 324.1129(2) provides for a procedure for determining whether a nuisance odor exists at a well or surface facility that produces H_2S:

> If a well or its associated surface facilities produce hydrogen sulfide and the supervisor or authorized representative of the supervisor receives 1 or more complaints of odor regarding the facility, then the supervisor may require the permittee of a well to perform numerical modeling to determine the concentration of hydrogen sulfide in the ambient air. Numerical modeling shall utilize the distance from the potential point of an uncontrolled release of gas at the well or its associated surface facilities to the closest existing structure used for public or private occupancy, existing area maintained for public recreation, or the edge of the traveled portion of an existing interstate, United States, or state highway. A permittee shall have the opportunity to provide, in addition to the numerical modeling, actual measurements of the concentration of hydrogen sulfide in the ambient air taken at the closest existing structure used for public or private occupancy, existing area maintained for public recreation, or the edge of the traveled portion of an existing interstate, United States, or state highway. The supervisor or authorized representative of the supervisor may determine a nuisance odor exists based on all applicable information. The supervisor or authorized representative of the supervisor may require appropriate emission control measures consistent with the provisions of this rule and R 324.1101 to R 324.1128. If emission control measures are required, then the permittee shall

> submit, within 30 days of being determined to be necessary by the supervisor, for the approval of the supervisor or authorized representative of the supervisor, a timetable for the installation of any equipment required.

While Rule 324.1129(2) sets forth the procedure for determining the H_2S concentrations in the ambient air, neither this rule nor other rules promulgated under Part 615 establish a numerical standard for H_2S concentrations for which the Supervisor of Wells (Supervisor) may determine a nuisance odor exists.

There is ample information on the health effects of acute exposure to high concentrations of H_2S. However, there has been very little sound guidance available on the effects of longer-term, low-level exposure. As a result, Governor John Engler requested the Michigan Environmental Science Board (MESB) to review the effects of low-level H_2S exposure and to recommend a level in ambient air that can be considered safe for human health. In August 2000 the MESB issued its report, entitled "Health Effects of Low-Level Hydrogen Sulfide in Ambient Air."

Based on the recommendations of the MESB report, I find that a sixty-minute time-weighted average of 0.2 parts per million (ppm) of H_2S in the ambient air at the closest existing structure used for public or private occupancy, existing area maintained for public recreation, or the edge of the traveled portion of an existing interstate, United States, or state highway constitutes an effective standard for determining whether a nuisance odor exists.

Instruction

This Instruction is issued in accordance with the provisions of Rule 324.103, Rule 324.1013, and Rule 324.1129(2) promulgated pursuant to Part 615.

After the effective date of this Instruction, if the Supervisor or authorized representative of the Supervisor finds, in accordance with the requirements of Rule 324.1129(2), that the concentration of H_2S attributable to a well, or its associated surface facilities regulated under Part 615, exceeds 0.2 ppm on a sixty-minute time-weighted average basis in the ambient air at the closest existing structure used for public or private occupancy, existing area maintained for public recreation, or the edge of the traveled portion of an existing interstate, United States, or state highway, then the Supervisor shall determine that a nuisance odor exists that may cause injurious effects to human health, and the Supervisor may require appropriate emission control measures consistent with the provisions of Rule 324.1101 to Rule 324.1130.

A determination by the Supervisor or authorized representative of the Supervisor that the H_2S concentration in ambient air, as determined above, is 0.2 ppm or less on a sixty-minute time-weighted average basis does not preclude the Supervisor from determining a nuisance odor exists that may cause unreasonable interference with the comfortable enjoyment of life or property, and requiring the permittee of the well to implement appropriate emission control measures consistent with the provisions of Rule 324.1101 to Rule 324.1130.

This Instruction is effective immediately.

Date: 3/22/01

Russell J. Harding
Supervisor of Wells

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

Supervisor of Wells Instruction 1-2002

Removal or Abandonment of Flow Lines and Facility Piping

Purpose

The purpose of this Supervisor of Wells Instruction is to provide consistent standards for the removal or abandonment of flow lines and facility piping to protect the soils, surface waters, and ground waters of the state.

Background

Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Part 615) requires the Supervisor of Wells (Supervisor) to prevent waste. Part 615 defines waste to include, among other things, unreasonable damage to waters, soil, or property. [MCL 324.61501]

The administrative rules promulgated under Part 615 address purging, abandonment, and removal of flow lines. Rule 324.1011 states:

> Rule 1011. A permittee of a well shall purge all flow lines and vessels, including tanks, if the flow lines or vessels are not used for 1 year and shall provide notification of the purging operation to the supervisor or authorized representative of the supervisor. The supervisor may require the line to be removed or abandoned.

Rule 324.102 defines flow lines:

> (q) "Flow line" means piping that connects a well or wells to a surface facility.

Properly abandoned flow lines do not pose a significant risk to water, soils, or other resources, and do not unreasonably interfere with use of the property. However, it is necessary to set specific criteria for the removal or abandonment of flow lines in order to prevent waste. In addition, the removal or abandonment of facility piping poses the same concerns for prevention of waste.

Rule 324.102 defines facility piping:

> (n) "Facility piping" means piping that connects any of the following:
> (i) Compressors.
> (ii) Flares.
> (iii) Loadouts.
> (iv) Separators.
> (v) Storage tanks.
> (vi) Transfer pumps.
> (vii) Treatment equipment.
> (viii) Vents.

Instruction

When required by the Supervisor under Rule 324.1011, the permittee of a well shall either remove or abandon flow lines or facility piping in accordance with the following requirements:

1. If flow lines or facility piping are removed, the removal shall be done in a manner that prevents the escape of fluids, and the flow lines or facility piping shall be reused, salvaged, or disposed of in a manner that prevents waste.

2. If flow lines or facility piping are abandoned in place, they must meet the following requirements:

   a. The flow lines or facility piping must have at least 30 inches of cover after site restoration, unless the landowner agrees in writing to a lesser depth of cover.

   b. Flow lines or facility piping shall be purged with fresh water. If a fluid displacement device (a "pig") is utilized, the volume of purge water shall be sufficient to displace the pig. If a pig is not utilized, the volume of purge water shall be a minimum of three times the volume of the section of line to be abandoned. Purge water shall be disposed of by injection into an approved underground formation in a manner that prevents waste and is consistent with all applicable state and federal laws and regulations.

   c. In addition, flow lines or facility piping that have transported liquid hydrocarbons shall be purged to remove all free hydrocarbons, as determined by visual inspection of the purge water. Purging shall continue until no visible evidence of liquid hydrocarbons exists.

   d. Flow lines or facility piping shall be sealed at both ends.

This Instruction is issued in addition to and in conjunction with all other applicable provisions of Part 615, and all applicable administrative rules promulgated thereunder. This Instruction does not supercede the terms of any contractual agreement that require a flow line or facility piping to be removed, or are otherwise more stringent than the requirements of this Instruction.

THIS INSTRUCTION IS EFFECTIVE July 5, 2002

Date: June 6, 2002

HAROLD R. FITCH
ASSISTANT SUPERVISOR OF WELLS

Michael Cote'

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

JOHN ENGLER
GOVERNOR

RUSSELL J. HARDING
DIRECTOR

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June 6, 2002

TO: All Oil and Gas Operators

FROM: Harold R. Fitch, Assistant Supervisor of Wells and Chief
Geological Survey Division

SUBJECT: Supervisor of Wells Instruction 1-2002 and New Version of Michigan's Oil and Gas Regulations

Enclosed are copies of Supervisor of Wells Instruction 1-2002, Removal or Abandonment of Flow Lines and Facility Piping and the latest version of Michigan's Oil and Gas Regulations, dated March 2002.

Supervisor of Wells Instruction 1-2002 clarifies the standards for the removal or abandonment of flow lines and facility piping to protect the soils, surface waters, and groundwaters of the state. The Instruction is issued to provide additional guidance to R 324.1011 – Purging, Removal, and Abandonment of Lines and Vessels of the administrative rules for Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), which gives authority to the Supervisor to require the removal or abandonment of such lines.

The March 2002 copy of Michigan's Oil and Gas Regulations includes all administrative rule amendments and statute changes except Act No. 148 of the Public Acts of 2002, which became effective April 5, 2002 and has been inserted into the back of the regulation booklet.

Should you have any questions regarding the Supervisor of Wells Instruction, please contact the District Supervisor of the Geological Survey Division for the county where your facility is located.

Harold R. Fitch

cc/enc: Frank Mortl, Michigan Oil and Gas Association
Oil and Gas Advisory Committee
All GSD Supervisors

RECEIVED
MICH. DEPT. OF ENVIRONMENTAL QUALITY
JUN 11 2002
GEOLOGICAL SURVEY DIVISION
KALAMZOO

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

Supervisor of Wells Instruction 1-2002

Removal or Abandonment of Flow Lines and Facility Piping

Purpose

The purpose of this Supervisor of Wells Instruction is to provide consistent standards for the removal or abandonment of flow lines and facility piping to protect the soils, surface waters, and ground waters of the state.

Background

Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Part 615) requires the Supervisor of Wells (Supervisor) to prevent waste. Part 615 defines waste to include, among other things, unreasonable damage to waters, soil, or property. [MCL 324.61501].

The administrative rules promulgated under Part 615 address purging, abandonment, and removal of flow lines. Rule 324.1011 states:

> Rule 1011. A permittee of a well shall purge all flow lines and vessels, including tanks, if the flow lines or vessels are not used for 1 year and shall provide notification of the purging operation to the supervisor or authorized representative of the supervisor. The supervisor may require the line to be removed or abandoned.

Rule 324.102 defines flow lines:

> (q) "Flow line" means piping that connects a well or wells to a surface facility.

Properly abandoned flow lines do not pose a significant risk to water, soils, or other resources, and do not unreasonably interfere with use of the property. However, it is necessary to set specific criteria for the removal or abandonment of flow lines in order to prevent waste. In addition, the removal or abandonment of facility piping poses the same concerns for prevention of waste.

Rule 324.102 defines facility piping:

> (n) "Facility piping" means piping that connects any of the following:
> (i) Compressors.
> (ii) Flares.
> (iii) Loadouts.
> (iv) Separators.
> (v) Storage tanks.
> (vi) Transfer pumps.
> (vii) Treatment equipment.
> (viii) Vents.

Instruction

When required by the Supervisor under Rule 324.1011, the permittee of a well shall either remove or abandon flow lines or facility piping in accordance with the following requirements:

1. If flow lines or facility piping are removed, the removal shall be done in a manner that prevents the escape of fluids, and the flow lines or facility piping shall be reused, salvaged, or disposed of in a manner that prevents waste.

2. If flow lines or facility piping are abandoned in place, they must meet the following requirements:

   a. The flow lines or facility piping must have at least 30 inches of cover after site restoration, unless the landowner agrees in writing to a lesser depth of cover.

   b. Flow lines or facility piping shall be purged with fresh water. If a fluid displacement device (a "pig") is utilized, the volume of purge water shall be sufficient to displace the pig. If a pig is not utilized, the volume of purge water shall be a minimum of three times the volume of the section of line to be abandoned. Purge water shall be disposed of by injection into an approved underground formation in a manner that prevents waste and is consistent with all applicable state and federal laws and regulations.

   c. In addition, flow lines or facility piping that have transported liquid hydrocarbons shall be purged to remove all free hydrocarbons, as determined by visual inspection of the purge water. Purging shall continue until no visible evidence of liquid hydrocarbons exists.

   d. Flow lines or facility piping shall be sealed at both ends.

This Instruction is issued in addition to and in conjunction with all other applicable provisions of Part 615, and all applicable administrative rules promulgated thereunder. This Instruction does not supercede the terms of any contractual agreement that require a flow line or facility piping to be removed, or are otherwise more stringent than the requirements of this Instruction.

THIS INSTRUCTION IS EFFECTIVE July 5, 2002

Date: June 6, 2002

HAROLD R. FITCH
ASSISTANT SUPERVISOR OF WELLS

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

Supervisor of Wells Instruction 1-2002

Removal or Abandonment of Flow Lines and Facility Piping

Purpose

The purpose of this Supervisor of Wells Instruction is to provide consistent standards for the removal or abandonment of flow lines and facility piping to protect the soils, surface waters, and ground waters of the state.

Background

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Instruction

When required by the Supervisor under Rule 324.1011, the permittee of a well shall either remove or abandon flow lines or facility piping in accordance with the following requirements:

1. If flow lines or facility piping are removed, the removal shall be done in a manner that prevents the escape of fluids, and the flow lines or facility piping shall be reused, salvaged, or disposed of in a manner that prevents waste.

2. If flow lines or facility piping are abandoned in place, they must meet the following requirements:

   a. The flow lines or facility piping must have at least 30 inches of cover after site restoration, unless the landowner agrees in writing to a lesser depth of cover.

   b. Flow lines or facility piping shall be purged with fresh water. If a fluid displacement device (a "pig") is utilized, the volume of purge water shall be sufficient to displace the pig. If a pig is not utilized, the volume of purge water shall be a minimum of three times the volume of the section of line to be abandoned. Purge water shall be disposed of by injection into an approved underground formation in a manner that prevents waste and is consistent with all applicable state and federal laws and regulations.

   c. In addition, flow lines or facility piping that have transported liquid hydrocarbons shall be purged to remove all free hydrocarbons, as determined by visual inspection of the purge water. Purging shall continue until no visible evidence of liquid hydrocarbons exists.

   d. Flow lines or facility piping shall be sealed at both ends.

This Instruction is issued in addition to and in conjunction with all other applicable provisions of Part 615, and all applicable administrative rules promulgated thereunder. This Instruction does not supercede the terms of any contractual agreement that require a flow line or facility piping to be removed, or are otherwise more stringent than the requirements of this Instruction.

THIS INSTRUCTION IS EFFECTIVE JULY 5, 2002

Date: June 6, 2002

HAROLD R. FITCH
ASSISTANT SUPERVISOR OF WELLS

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

Supervisor of Wells Instruction 1-2004

Conditions for Approval of Temporarily Abandoned Status for Oil and Gas Wells

Purpose

The purpose of this Supervisor of Wells Instruction is to provide consistent standards for the approval of temporarily abandoned status for oil and gas wells.

Background

Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended requires the Supervisor of Wells (Supervisor) to prevent waste. Abandoned and improperly plugged wells are potential sources of both surface waste and underground waste as those terms are defined. Waste can also occur, however, through the premature plugging of wells that have future potential use. For this reason, the Supervisor must carefully evaluate each request received for temporarily abandoned status. Rule 324.209 under Part 615 provides that a well that has not been used for its intended purpose for over 12 consecutive months shall be plugged unless the well is granted temporarily abandoned (TA) status by the Supervisor. The initial term for TA shall not exceed one year except for wells awaiting connection to a sales line whose initial term can be up to 5 years. An applicant may request TA for a term of up to 5 years. The permittee of a well requesting TA status must be eligible for permits

The following rules address the timing of the plugging and abandonment of a well:

R 324.102 Definitions; A to M.

(p) "Final completion" means the time when locating, drilling, deepening, converting, operating, producing, reworking, plugging, and proper site restoration have been performed on a well in a manner approved by the supervisor, including the filing of the mandatory records, and when the conformance bond has been released.

R 324.209 Temporary abandonment status.

(1) A permittee of a well that has not been used for its permitted purpose during 12 consecutive months shall plug the well, unless the well is granted temporary abandonment status. Temporary abandonment status shall be allowed only upon written application to, and approval of, the supervisor or authorized representative of the supervisor.

(2) The term of the initial temporary abandonment status shall not be more than 12 months, unless the well is shut-in awaiting the connection of a sales line. For a well that is shut-in awaiting connection of a sales line, the term of the initial temporary abandonment status shall be up to and including 60 months

(3) Extensions for temporary abandonment status beyond the initial term provided in subrule (2) of this rule may be granted by the supervisor if, after application by the permittee, the supervisor determines that waste shall be prevented. When approving the extensions, the supervisor may require special actions and monitoring by the permittee to ensure the prevention of waste.

R 324.903 Commencement of plugging operations.

(1) A permittee of a well shall commence plugging operations within 90 days after drilling completion or well completion as a dry hole, when the well has not economically produced or has not been utilized for its permitted use for more than 12 consecutive months, when a change of well status has not been granted, or when the permitted use has been suspended for more than 12 consecutive months. The supervisor may require, or a permittee may submit, proof that is necessary to determine if the well is being economically produced.

(2) After receiving a written request showing just cause why the well should not be plugged, the supervisor or authorized representative of the supervisor may grant temporary abandonment status pursuant to R 324 209 or require completion of the plugging operations.

R 324.1003 Restoration of well site; filling and leveling of cellars, pits, and excavations; removal of debris.

A permittee of a well shall fill and level the cellar and all pits and excavations, remove or eliminate debris, minimize erosion, and restore the well site as nearly as practicable to the original land contour or to a condition approved by the supervisor or authorized representative of the supervisor as soon as practical after the completion of plugging to the surface, but not more than 6 months after the completion of plugging to the surface.

This Supervisor's Instruction sets forth criteria for approval of TA status, to ensure that TA wells will not cause waste or become a future obligation of the State of Michigan to bring the well to final completion.

Instruction

I. For a well to be considered for routine TA approval, the following criteria must be satisfied:

1. The well must qualify for TA under one or more of the following categories. The permittee shall demonstrate how a well qualifies for TA status:
   - Mechanical back-up well
   - Future deepening or re-completion
   - Conversion to another well type
   - Connection to sales line
   - Processing constraints
   - Conversion to secondary recovery or gas storage
   - Future use as a monitor or observation well

2. The permittee applies for TA prior to receiving a Notice of Non-Compliance for failure to plug or utilize the well, which was issued more than six months after the effective date of this Instruction.

3. Not more than ten percent of a permittee's wells may be held TA at one time.

4. Wells that have been plugged to the surface but are not in compliance with R 324.1003 or for which all required records have not been filed shall be included in the calculation for the total number of wells which may be held TA according to the following formula: (Proposed TA Wells + Plugged Wells Not in Compliance) ÷ Total Unplugged Wells ≤ 10%. Wells plugged to the surface are not required to receive TA

approval. Wells which are plugged back or partially plugged, are considered unplugged wells and are subject to TA approval.

5. For wells that have been, or will be held idle for a cumulative period greater than five years, the permittee shall verify the liquid fluid level is at least 100 feet below the deepest freshwater zone.

II. Wells that do not fit the criteria in Part I for routine TA approval may be considered for TA as an exception only after submittal of an evaluation, formal agreement, or other documentation acceptable to the Supervisor that demonstrates how the proposed plan to hold the well in TA status (TA Plan) will prevent waste and will prevent the well from becoming a future obligation of the State of Michigan to bring to final completion. Wells considered for TA as an exception to the criteria in Part I above may require additional bonding.

III. The following requirements shall apply to all wells that are granted TA status, whether as a routine approval or as an exception:

- All tanks and vessels that serve a TA well must be drained of all fluids unless another active well uses the same tanks or vessels.
- The well sites shall continue to be maintained in compliance with all applicable rules.
- Wells containing more than 300 parts per million by volume hydrogen sulfide may require additional measures to prevent waste and to protect human health and safety.
- Permits for wells with approved TA status may not be transferred to a new permittee until the acquiring owner has met the criteria in this Instruction.
- The permittee shall maintain the mineral rights leases, agreements, and easements necessary to access, produce and plug the well.
- Failure to meet the conditions of this Instruction may result in the Supervisor rescinding TA status for a well.

IV. The Supervisor will not commence enforcement of Rule 324.903 until six months after the effective date of this Instruction to allow permittees an opportunity to bring their wells into compliance. Permittees are encouraged to provide the District Geologist with a listing of wells that have not been utilized for their intended purpose for over twelve months, and to submit requests for TA and provide TA plans as needed.

This Instruction is issued in addition to and in conjunction with all other applicable provisions of Part 615, and all applicable administrative rules promulgated thereunder. It does not affect existing approved TA requests or existing formal written agreements with the Supervisor

THIS INSTRUCTION IS EFFECTIVE JANUARY 1, 2005.

Date: December 15, 2004

HAROLD R. FITCH
ASSISTANT SUPERVISOR OF WELLS

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

SUPERVISOR OF WELLS INSTRUCTION 1-2006

NOTIFICATION TO SURFACE OWNERS OF SPILLS AND RELEASES

Purpose

The purpose of this Supervisor of Wells Instruction is to clarify the requirements for oil and gas operators to notify property owners of contamination resulting from spills or releases.

Applicable Statutes and Rules

Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA).

Part 201, Environmental Remediation, of the NREPA.

Rule 522 under Part 201 (R 299.5522 of the Michigan Administrative Code (MAC)).

Rule 1017 under Part 201 (R 299.51017 of the MAC).

Background

Neither Part 615, Supervisor of Wells, of the NREPA nor the administrative rules promulgated thereunder contain requirements for reporting of spills and releases to landowners. However, the administrative rules under Part 201, Environmental Remediation, of the NREPA do address that issue. Rule 522 and Rule 1017 under Part 201 require a person who holds a permit for an oil or gas well under Part 615 to notify the owner of the surface rights of the property if a spill or release from the oil and gas activities results in hazardous substance concentrations in excess of residential cleanup criteria. Residential cleanup criteria have been developed by the Department of Environmental Quality (DEQ) and are defined in the Remediation and Redevelopment Division (RRD) Operational Memorandum No. 1, "Part 201 Cleanup Criteria, Part 213 Risk-based Screening Levels," updated December 10, 2004.

The notice required under Rule 522 or Rule 1017 must be in writing and filed within 45 days after the permittee has knowledge of the contamination. The purpose of this Instruction is to clarify the circumstances and conditions under which an owner or operator must provide this notification.

Part 201 and the administrative rules also set forth requirements under which an owner or operator of a property must notify the owner of *adjacent* property when a spill or release results in hazardous substance concentrations in excess of residential cleanup criteria migrating onto or under the adjacent property. These provisions apply to an owner or operator of *any* property, whether used for oil and gas production or other purposes. They are sufficiently clear as to how they apply to oil and gas operations, and do not require further explanation or clarification in this Instruction.

Instruction

1. A person who holds a permit for an oil or gas well under Part 615 (the "permittee") and who is responsible for a spill or release of brine, crude oil, condensate, oil or gas field liquid waste, or other products or chemicals used in association with oil or gas exploration or production activities shall provide notice to property owners as follows:

   a. The permittee shall notify the owner of the surface rights of the property where the well or related surface activities are located if a spill from the oil and gas activities results in hazardous substance concentrations in the soil or groundwater in excess of residential cleanup criteria.

   b. The applicable residential cleanup criteria are defined in the RRD Operational Memorandum No. 1, "Part 201 Cleanup Criteria, Part 213 Risk-based Screening Levels" and Attachment 1, updated December 10, 2004. The criteria for hazardous substances commonly found in crude oil and oil field brine are as follows:

Substance	Concentration in groundwater, micrograms per liter	Concentration in soil, micrograms per kilogram
Chloride	250,000	500,000*
Benzene	5	100
Ethylbenzene	74	1500
Toluene	790	16,000
Xylenes	280	5600

* Direct contact criterion

   The criteria for substances that may be found in other liquid wastes, products, or chemicals can be found in the attachments to Operational Memorandum No. 1. The Memorandum and Attachments may be obtained from RRD at P.O. Box 30426, Lansing, MI 48909-7926, or from the DEQ web site, http://michigan.gov/deq.

   c. The notice shall include all of the following:
   (i) The name of the permittee and location of the oil or gas well or associated surface activity.
   (ii) The name, address, and telephone number of a representative of the permittee who may be contacted regarding the spill or release.
   (iii) A summary of information on the spill or release, identifying whether soils or groundwater is affected, the specific hazardous substances, and the concentrations of those hazardous substances in the soils or groundwater.

   d. The permittee shall provide the notice required by this Instruction and the Part 201 rules within 45 days of the date on which the permittee has reason to believe that a spill or release has resulted in hazardous substance concentrations in excess of the criteria defined in b. above. The permittee is not required to notify the property owner if the spill or release is remediated within 45 days so that the soils and groundwater meet the criteria defined in b. above.

2. This Instruction does not override any obligations that a permittee may have under an oil and gas lease or other contractual agreement with a property owner, including such an agreement with the State of Michigan. It may be reasonable or prudent in some instances for a permittee to take actions to notify a property owner in addition to the notification required by this Instruction and the rules promulgated under Part 201.

THIS INSTRUCTION IS EFFECTIVE MARCH 15, 2006.

Date: 2/16/06

STEVEN E. CHESTER
SUPERVISOR OF WELLS

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

SUPERVISOR OF WELLS INSTRUCTION 1-2009

IDENTIFICATION OF COMPANY PERSONNEL - PART II CONTINGENCY PLAN

Purpose

The purpose of this Supervisor of Wells Instruction is to clarify Rule 1110(6)(c) of Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), by establishing the minimum acceptable information required for oil and gas operators in identifying company personnel pursuant to this rule.

Applicable Statues and Rules

Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act, 1994, PA 451, as amended (NREPA).

Rule 1110 Contingency Plans of Part 615 for drilling and production.

Background

Part 615 requires an operator who intends to drill a well that may encounter hydrogen sulfide (H2S) to file a contingency plan. The contingency plan consists of two parts: Part I contains the general procedures that operator will take following the event of an emergency involving the possible release of H2S, and Part II contains site-specific information for a specific well that may encounter H2S. Rule 1110(6)(c) addresses the reporting requirement regarding representatives of the permittee. Specifically Rule 1110(6)(c) requires the permittee to list "Names and contact information for local representatives of the permittee who have knowledge of the equipment and authority to take corrective actions at the well or facility in an emergency situation."

Based on previous experiences during the drilling of H2S wells, the Supervisor believes that the company representative responsible for overall incident control should not also be the individual responsible for notifying county emergency management personnel or members of the public.

Instruction

The minimum information acceptable to the Supervisor of Wells with regards to the drilling of a potential H2S well is as follows:

> The name and contact information for the local representative of the permittee with overall authority for incident control, and the name and contact information for the local representative of the permittee with responsibility for notifying county emergency management personnel and/or members of the public.
>
> One individual may not perform both functions.

THIS INSTRUCTION IS EFFECTIVE May 1, 2009

Date: April 14, 2009

HAROLD R. FITCH
ASSISTANT SUPERVISOR OF WELLS

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

SUPERVISOR OF WELLS INSTRUCTION 1-2011

HIGH VOLUME HYDRAULIC FRACTURING WELL COMPLETIONS

Purpose

The purpose of this Supervisor of Wells Instruction is to clarify the requirements under Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), for permitting, drilling, completing, and records reporting for all oil and gas wells that utilize high volume hydraulic fracture completion technology.

Applicable Statutes and Rules

Part 615, Supervisor of Wells, of the NREPA, and the administrative rules promulgated thereunder.

Definitions

For purposes of this Instruction:

"High volume hydraulic fracturing well completion" means a well completion operation that is intended to use a total of more than 100,000 gallons of hydraulic fracturing fluid.

"Large volume water withdrawal" means a water withdrawal intended to produce a cumulative total of over 100,000 gallons of water per day when averaged over a consecutive 30-day period.

"Adverse resource impact," site-specific review," "assessment tool," "zone B withdrawal," "cold-transitional river system," "zone C withdrawal," and "zone D withdrawal" have the same meanings as in Part 327, Great Lakes Preservation, of the NREPA, MCL 324.32701 *et seq.*

Other terms have the same meanings as in Part 615 of the NREPA or administrative rules promulgated thereunder.

Background

Hydraulic fracturing is a well completion operation that involves pumping fluid and proppants into the target formation to create or propagate artificial fractures, or enhance natural fractures, for the purpose of improving the deliverability and production of hydrocarbons. The technique dates back over 60 years. However, in recent years some completion operations have utilized larger volumes of hydraulic fracturing fluids in conjunction with horizontal drilling. Such operations typically involve multiple fracturing stages and total volumes of fracturing fluid exceeding 100,000 gallons.

This type of well completion operation has created some unique conditions not typical of conventionally completed wells. These include: on-site large volume water withdrawals, fresh water pits, larger volumes of chemical additives, and larger volumes of flowback water. This Instruction applies to all high volume hydraulic fracturing well completions.

Permitting Instructions

The withdrawal of water for oil and gas operations is currently exempt from the requirements of Michigan's water withdrawal statute (Part 327). However, in order to assure that a proposed withdrawal will not adversely affect surface waters or nearby freshwater wells, the following items shall be provided to the Office of Geological Survey (OGS) prior to a large volume water withdrawal for well completion operations. The items may be included with the application for the permit to drill or may be provided to the appropriate OGS district supervisor at least 14 days before the water withdrawal begins.

1. A water withdrawal evaluation utilizing the assessment tool accessed at http://www.miwwat.org/. The generated withdrawal determination shall be provided. If the assessment tool determines that the proposed withdrawal is a zone B withdrawal in a cold-transitional river system, or a zone C or zone D withdrawal, the applicant or permittee may submit to the Department of Environmental Quality a request for a site-specific review. It should be noted that if the site-specific review, or the assessment tool if a site-specific review is not conducted, indicates that the proposed withdrawal is likely to cause an adverse resource impact, or designates the proposed withdrawal as a zone B withdrawal in a cold-transitional river system or a zone C or zone D withdrawal, the ability to utilize an on-site water supply well(s) may be impacted.

2. The following data and records:
    a. Proposed total volume of water needed for hydraulic fracturing well completion operations.
    b. Proposed number of water withdrawal wells.
    c. Aquifer type (drift or bedrock).
    d. Proposed depth of water withdrawal wells (feet below ground surface).
    e. Proposed pumping rate and pumping frequency (continuous or intermittent) of the water withdrawal wells.

3. A supplemental plat of the well site showing the following:
    a. Proposed location of water withdrawal wells (latitude/longitude).
    b. Location of all recorded fresh water wells and reasonably identifiable freshwater wells within 1,320 feet of water withdrawal location (latitude/longitude).
    c. Proposed freshwater pit location and dimensions.

Completion Instructions

Important considerations for well completion operations include the monitoring of any potential impact to area freshwater wells, the management of freshwater and flowback water, and the observation of induced well pressures. Therefore, operators shall conform to the following requirements for high volume hydraulic fracturing well completions:

1. If one or more freshwater wells are present within 1,320 feet of a proposed large volume water withdrawal, then the operator shall install a monitor well between the water withdrawal well(s) and the nearest freshwater well. The operator shall measure and record the water level in the monitor well daily during water withdrawal and weekly thereafter until the water level stabilizes. The operator shall report the water level data weekly to the OGS District Supervisor.

2. Freshwater pits should not create a site hazard and shall not remain on-site after well completion operations. Depending upon site conditions freshwater pits will be subject to soil erosion protective measures and may require fencing.

3. During hydraulic fracturing operations, the operator shall monitor and record the injection pressure at the surface and the annulus pressure between the injection string and the next string of casing unless the annulus is cemented to surface.

Reporting Instructions

An operator that conducts a high volume hydraulic fracturing well completion shall provide the following items with the record of well completion operations:

1. Material Safety Data Sheets provided by the service company for the chemical additives used and volume of each chemical additive used.
2. Service company fracturing records and associated charts showing fracturing volumes, rates, and pressures.
3. Annulus pressures recorded during fracturing operations.
4. The total volume of flowback water (formation and/or treatment water) to date at the time of record submittal, which shall be included in the Record of Well Completion (EQP 7130).

THIS INSTRUCTION IS EFFECTIVE JUNE 22, 2011.

Date: May 23, 2011

HAROLD R. FITCH
ASSISTANT SUPERVISOR OF WELLS

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

TO: All Oil and Gas Interested Persons

FROM: Harold R. Fitch, Assistant Supervisor of Wells and Chief
Office of Oil, Gas, and Minerals

DATE: April 21, 2015

SUBJECT: Supervisor of Wells Instructions Rescinded

The following Supervisor of Wells Instruction has been incorporated into the Rules of Part 615, Supervisor of Wells, Natural Resources and Environemtnal Protection Act, 1994 PA 451, as amended. The Instruction is therefore no longer necessary. For this reason, this Supervisor of Wells Instruction is hereby rescinded effective April 21, 2015.

Supervisor of Wells Instruction 1-2011: High Volume Hydraulic Fracturing Well Completions

STATE OF MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

SUPERVISOR OF WELLS INSTRUCTION 1-2013

WATER WELL CONSTRUCTION AND ABANDONMENT REQUIREMENTS

Purpose

The purpose of this Supervisor of Wells Instruction is to provide direction under the existing water well construction and well plugging/abandonment rules, which are stated in Rule 403 of Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA).

Applicable Statutes and Rules

Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act, 1994, PA 451, as amended (NREPA).
Rule 403 under Part 615 of the NREPA (R 324.403 of the Michigan Administrative Rules).
Part 127, Water Supply and Sewer Systems of the Public Health Code, 1978 PA 368, as amended, being §333.12701 et seq. of Michigan Compiled Laws.
Rule 113 under Part 127 (R 325.1613) Deviations from minimum standards.
Rule 122 under Part 127 (R 325.1622) Wells; distances from contamination sources.
Rule 133a under Part 127 (R 325.1633a) Construction of wells; grouting.
Rule 164 under Part 127 (R 325.1664) Abandonment of wells; plugging materials.

Background

The Supervisor of Wells is issuing this Instruction to revise and update the requirements for water well drilling, construction, and plugging/abandonment associated with oil and gas activities. Water wells used for drinking water at oil and gas sites or retained for other uses (termed "potable wells" herein) are subject to Part 127 of the Public Health Code and that provision is reaffirmed in Part 615 Rules. Water wells used only for drilling and/or production operations (termed "non-potable wells" herein) are exempt from the requirements of Part 127 per Section 333.12703(1) but are subject to Part 615 Rules.

Rule 403 under Part 615 states:

"(1) A water well that is drilled and used for drinking water purposes during the drilling of the well or retained after drilling completion or final completion shall be drilled pursuant to rules promulgated under part 127 of Act No. 368 of the Public Acts of 1978, as amended, being §333.12701 et seq. of the Michigan Compiled Laws.

(2) A water well that is not to be retained after drilling completion or final completion shall be completed and abandoned as instructed by the supervisor and shall meet all of the following minimum requirements:

(a) Be located not less than 50 feet from drilling mud pits, pipe racks, salt and mud mixing sites, and the wellhead.

(b) Be drilled with chlorinated fresh water.

(c) Be grouted pursuant to the well construction and grouting rules contained in the well construction code promulgated under part 127 of Act No. 368 of the Public Acts of 1978, as amended, being §333.12701 et seq. of the Michigan Compiled Laws.

(d) Geologic records shall be filed with the supervisor on a form prescribed by the supervisor.

(e) The wellhead, including annulus, shall be sealed and a check valve shall be installed in the surface discharge line to prevent contaminants from entering the well.
(f) The well shall be abandoned and plugged pursuant to the plugging and abandonment rules contained in the well construction code promulgated under part 127 of Act No. 368 of the Public Acts of 1978, as amended, being §333.12701 et seq. of the Michigan Compiled Laws."

The purpose of this Instruction is to assure the protection of public health and the environment in the drilling, construction, and plugging/abandonment of water wells associated with oil and gas operations.

Instruction

This Instruction is applicable to water supply wells relating to oil and gas activities. Monitor wells and piezometers are exempt from this Instruction.

Water wells drilled and used in conjunction with oil and gas activities must meet the following requirements:

Water Well Drilling and Construction Standards

A. Non-potable water wells will be drilled using chlorinated fresh water, and be constructed pursuant to Rule 403 of Part 615 of the NREPA and be grouted using neat cement.

B. Potable water wells shall be located and constructed in accordance with Part 127 Rules and must adhere to local health department sanitation codes and regulations. For potable water wells, the permittee shall notify the local health department and obtain any necessary water well permit prior to the start of water well drilling activities.

C. Notification of water well drilling shall be provided to the Department of Environmental Quality, Office of Oil, Gas, and Minerals (OOGM) at least five (5) days prior to the commencement of the water well drilling activities.

Water Well Grouting

A. Water wells installed using rotary-bored or auger methods in unconsolidated glacial drift deposits or bedrock where the permanent well casing is installed in an oversized borehole shall have the entire annular space between the permanent well casing and borehole grouted using neat cement. If a well screen is installed, the bottom of the grouted interval shall be not more than ten (10) feet above the top of the well screen. The top of the grouted interval shall be two (2) feet below the water service line or ground surface for wells that are completed using an above ground connection tee.

1. The neat cement mixture ratio shall consist of one (1) bag of Portland cement (94 pounds [lbs]) to not more than six (6) gallons of fresh water, and up to five (5) percent by weight bentonite gel. Grouting shall be conducted in one continuous operation without major delays or breaks.

2. Neat cement will be placed in the annular space using a tremie/grout pipe or circulated through the casing and be grouted from the bottom of the annular space upward towards the ground surface. The borehole diameter shall be at least two (2) inches larger than the nominal size of the well casing. In addition, the annular space between the well casing and borehole must be at least two and seven eighths (2 7/8) inches or larger when using a tremie/grout pipe.

3. The neat cement shall be allowed to set for a minimum of 12 hours to ensure that the cement has not settled out in the annular space. If the cement has settled in the annular space, additional neat cement must be added to the annular space to bring the cement up to within two (2) feet of the water service line connection or to ground surface for water wells completed with an above ground connection tee prior to the commencement of oil and gas well drilling activities.

B. Water wells installed using cable tool, hollow rod, jetting, or other drilling method where the permanent well casing is driven shall be grouted to either of the following provisions:

1. Where temporary casing or oversized borehole is not used or where the temporary casing or oversized borehole is less than 25 feet in depth, dry granular bentonite shall be maintained around the permanent casing as it is being driven.

2. By installing a temporary casing or oversized borehole not less than three (3) inches larger than the nominal size of the permanent casing and extending not less than 25 feet below the established ground surface and grouting the annular space surrounding the permanent well casing using neat cement.

C. Water wells that are installed in bedrock shall have neat cement placed in a manner that isolates zones of lower groundwater quality from zones of higher groundwater quality.

Water Well Location - Minimum Spacing from Contamination Sources

Non-potable water wells must be located at least 50 feet from reserve pits, pipe racks, salt and mud mixing sites, or other chemical storage areas, and the wellhead. Potable water wells must be located at an approved distance in accordance with local health department rules and regulations. This distance is generally 300 feet from potential contamination sources including the oil/gas wellhead based on Rule 122 of Part 127. The use of neat cement on all potable and non-potable water wells provides consistency with Part 127 and local health sanitation codes. Exceptions to the potable water well being located closer than 300 feet to a potential source of contamination are described in Rule 113 of Part 127. This Rule provides for deviations from minimum well distances from a potential or known source of contamination. Deviations from the 300 foot rule for potable water wells will be evaluated on a case by case basis by the local health department.

Water Well Plugging/Abandonment

A. Pump, drop pipe, packer, other equipment, debris or obstructions that may interfere with sealing operations shall be removed from the well prior to well plugging.

B. The well casing, or the hole if the casing is pulled, shall be plugged from the bottom to the top using neat cement.

C. The neat cement mixture ratio shall consist of one (1) bag of Portland cement (94 lbs) to not more than six (6) gallons of fresh water, and up to five (5) percent by weight bentonite gel.

D. Water wells that exhibit artesian flow or contain subterranean gases shall have the casing left in place and filled with neat cement from the bottom of the well to four (4) feet below ground surface.

E. If there is evidence of flow outside the casing, it shall be corrected by pressure grouting from the bottom of the well to the top using neat cement.

F. The well casing and grout shall terminate at four (4) feet below ground surface. The remaining portion of the hole will be backfilled with clean native soil or backfill and graded to the existing surrounding grade.

Water Well Pump and Plugging Records

A. The permittee or their water well contractor/driller shall submit to the OOGM within 30 days after the water well completion, the Wellogic® Water Well and Pump Record (preferred option) or the Water Well Record for Oil and Gas Operations (Form EQP-7200-10). If the Wellogic® Water Well and Pump Record is submitted to the OOGM, it must contain the Permit Number for the oil/gas well, and the oil/gas well name.

B. The permittee or their water well contractor/driller shall submit to the OOGM within 30 days after the water well is plugged, the Wellogic® Abandoned Well Plugging Record (preferred option) or the Water Well Plugging Record (Form EQP-7200-20). If the Wellogic® Abandoned Well Plugging Record is submitted to OOGM, it must contain the Permit Number for the oil/gas well, and the oil/gas well name.

Water Well Ownership and Assumption of Responsibility by Landowner

A. Water wells that are to be retained by the property owner after drilling completion or final completion of the oil or gas well must submit an Assumption of Responsibility by Landowner (EQP-7240) form to the OOGM. The Assumption of Responsibility by Landowner form must be signed by the permittee/company and property owner and must describe the transfer of responsibility of ownership of the well to the property owner. The Assumption of Responsibility by Landowner form shall be submitted and approved within six (6) months after oil/gas well plugging has occurred.

B. Water wells that are to be retained or used for drinking water after drilling completion or final completion of the oil or gas well must meet Part 127 and local health department sanitation codes. The permittee shall make the necessary arrangements with the landowner and the local health department prior to the transfer of ownership of a potable water well. The OOGM staff should receive proof of approval by the local health department prior to issuing the Assumption of Responsibility by Landowner. The Assumption of Responsibility by Landowner form shall be submitted and approved within six months after oil/gas well plugging has occurred.

THIS INSTRUCTION IS EFFECTIVE May 1, 2013.

Date: May 10, 2013

HAROLD R. FITCH
ASSISTANT SUPERVISOR OF WELLS

Attachments:
EQP-7200-10 Water Well Record for Oil, Gas, or Mineral Operations
EQP-7200-20 Water Well Plugging Record for Oil and Gas Operations
Wellogic® Water Well and Pump Record
Wellogic® Abandoned Well Plugging Record
EQP-7240 Assumption of Responsibility by Landowner

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

SUPERVISOR OF WELLS INSTRUCTION 1-2015

OIL AND GAS DEVELOPMENT IN HIGH POPULATION DENSITY AREAS

Purpose

The purpose of this Instruction is to minimize potential land use conflicts over oil and gas development in areas with high residential population densities while protecting the rights of mineral owners and lessees to explore for and develop oil and gas resources on their property. This Instruction provides direction under the existing oil and gas rules for oil and gas wells within high population density areas, under the authority of Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and the administrative rules promulgated thereunder.

Applicable Statute and Rule

Section 61506 of Part 615 states:

> The supervisor shall prevent the waste prohibited by this part. To that end, acting directly or through his or her authorized representatives, the supervisor is specifically empowered to do all of the following:
> (a) To promulgate and enforce rules, issue orders and instructions necessary to enforce the rules, and do whatever may be necessary with respect to the subject matter stated in this part to implement this part, whether or not indicated, specified, or enumerated in this or any other section of this part....

R 324.1301 of the administrative rules promulgated under Part 615 states:

> The supervisor, under section 61506 of the act, may do any of the following:
> (a) Enforce all rules, issue orders, determinations, and instructions necessary to enforce the rules and regulations, and do whatever may be necessary with respect to the subject matter stated in these rules to carry out the purposes of these rules and the act, whether or not the orders, determinations, or instructions are indicated, specified, or enumerated in the act or rules....

Definitions

As used in this Instruction:

"dB(A)" means decibels on the a-weighted network.

"High population density site" means an oil and gas well location where all of the following conditions exist:

(a) The well location is in a county with a population of 750,000 or more.
(b) The well location is zoned exclusively for residential use by the local zoning authority at the time a permit application is received by the Michigan Department of Environmental Quality (MDEQ).
(c) There are 40 or more structures used for public or private occupancy, in any 90-degree quadrant within 1,320 feet of the well location.

"MSDS" means Material Safety Data Sheet that is required under Section 311 of the federal Emergency Planning and Community Right-to-Know Act of 1986, Public Law 99-499, 42 U.S.C. 2010.

Other terms used in this Instruction have the same meaning as in the administrative rules promulgated under Part 615. For reference, the definitions of pertinent terms in the administrative rules are listed in Appendix A of this Instruction.

Applicability of Instruction

This Instruction applies to oil and gas operations commenced after the effective date of the Instruction.

Permit Applications

The following requirements apply to an application for a permit at a high population density site:

1. A permit applicant shall provide notice of the application to the owners of record of structures used for public or private occupancy within 1,320 feet of the proposed well location. The notice shall be given to the owner within 7 days of submitting the permit application to the MDEQ's Office of Oil, Gas, and Minerals (OOGM), by first-class United States (U.S.) mail addressed to the last known address of the owner of record as evidenced by the current register of deeds office or assessor's records. The notice shall contain at least all of the following information:
   a. The name and address of the applicant.
   b. A statement that the applicant has applied for a permit to drill and operate an oil and gas well.
   c. A statement that a person may submit comments on the application by mail at MDEQ, OOGM, P.O. Box 30256, Lansing, Michigan 48909-7756; or by

accessing the OOGM Weekly List of Applications and Permits for Oil and Gas Wells on the MDEQ Web site: http://www.michigan.gov/ogs.

d. A copy of the first page of the permit application.

2. The OOGM shall provide notice of the permit application and permit decision to the supervisor of the township where the well is to be located and to the State Senator and State Representative of the respective districts wherein the well is to be located. The notice shall be given by email to the respective offices, or by first-class U.S. mail if so requested by the respective official.

3. A permit application shall include all of the following:
   a. An evaluation of feasible and prudent alternatives for the proposed well location. The evaluation shall include an identification of potential well locations that are further removed from structures used for public or private occupancy, property ownership and legal constraints, and technical and environmental safety aspects of alternative sites.
   b. Plans and schedules for berming, screening, and/or enclosures to limit public views of wellheads and pump jacks after well completion operations are concluded.
   c. A depiction on the plat required under Rule 324.201(2)(b) of all structures used for public or private occupancy within 1,320 feet of the well location.
   d. Plans for reducing noise levels to meet the requirements of the Drilling, Completion, and Production Operations, Item 4, of this Instruction.

Drilling, Completion, and Production Operations

The following requirements apply to drilling operations, well completion operations, and operation of oil and gas wells at a high population density site:

1. A permittee shall install at least one groundwater monitoring well in close proximity to, and down gradient of, the well location prior to commencing drilling operations. The permittee shall collect a water sample from the monitor well prior to commencing drilling operations and at approximately three months and six months following drilling completion. The water samples shall be tested for specific conductance, chloride, benzene, ethylbenzene, toluene, and xylene. The permittee shall provide the results of the sample analysis to the OOGM within seven days of the date the results are available.

2. A permittee shall communicate with the local fire marshal and emergency responders to explain and describe the timing, sequence, and critical points at the drilling operation at least seven days before moving a drilling rig to the well location and on an as–needed basis during drilling operations, and shall provide the fire marshal and emergency responders with a means to contact a representative of the permittee on a 24-hour basis.

3. A permittee shall post an identification sign in a clearly visible place at the entrance to the well location. The permittee shall post the sign at least five days

before commencing drilling operations and shall maintain the sign until after drilling operations are completed. The sign shall have lettering at least 1 1/2 inches high and legible under normal conditions at a distance of 25 feet, and shall show the following information:

a. A statement that the site is the location of an oil and gas well;
b. the expected duration of the drilling operation;
c. the name of the permittee; and
d. a telephone number by which an authorized representative of the permittee may be contacted at any time to respond to an emergency at the well.

4. A permittee shall take necessary measures to prevent nuisance noise associated with drilling operations.
   a. Drill rig engines shall be equipped with quiet design mufflers or equivalent. All mufflers shall be properly installed and maintained in proper working order.
   b. Drilling operations shall be conducted in a manner to reduce sound to either of the following levels, whichever is higher, at the nearest structure used for public or private occupancy:
      i. 75 dB(A) between 8:00 a.m. and 8:00 p.m., and 70 dB(A) between 8:00 p.m. and 8:00 a.m.
      ii. A sound level 10 dB(A) higher than background.
   c. If measurement of sound levels at the nearest structure used for public or private occupancy is impractical, the measurement may be taken at a lesser distance and extrapolated using the following formula:

      $dB(A)2 = dB(A)1 - 20 \times \log 10 (D1/D2)$

      Where:

      dB(A)2 = Calculated decibel level at the nearest structure used for public or private occupancy

      dB(A)1 = Decibel level at the point of measurement

      D1 = Distance from well location to point of measurement

      D2 = Distance from well location to the nearest structure used for public or private occupancy
   d. Sound levels shall be determined by averaging minute-by-minute measurements made over a minimum 15-minute sample duration if practicable.
   e. If the supervisor or authorized representative of the supervisor receives one or more complaints of noise heard by the occupant of a structure used for public or private occupancy that is attributed to a drilling operation, then the supervisor may require the permittee to collect decibel readings to determine the sound levels at the structure or an alternative location as described in Item 4(c). If the sound level exceeds the levels in Item 4(b), then the permittee shall immediately implement reasonable measures to meet those sound levels.
   f. The requirements of this paragraph shall not apply during emergency conditions.

5. Drill cuttings, muds, and fluids used in drilling a well shall be contained in tanks and shall not be stored in in-ground pits or disposed of at the well location.

6. Drill rig lighting shall be shielded to prevent unnecessary light being directed toward structures used for human occupancy within 600 feet of the well location.

7. A permittee shall assure that a supervisory person who is qualified in well safety is present at the well site at all times during drilling operations.

8. Fencing shall be maintained around the perimeter of the well site to limit access during drilling operations, well completion operations, and operation of an oil and gas well.

9. A permittee shall provide site security as needed to prevent unauthorized access to the well site during drilling operations.

10. A permittee shall post MSDSs for all chemicals that are used or stored at a well site for which MSDSs are required under Section 311 of the federal Emergency Planning and Community Right-to-Know Act. The MSDSs shall be posted at the entrance to the access drive in a manner such that they can be accessed by the public and emergency response personnel.

11. Combustible gas and vapor produced during well completion, testing, and production shall be captured or burned in a flare or incinerator. A flare shall be surrounded by a shroud so that the flame shall not be visible at the ground level in surrounding areas.

12. Transportation of equipment and supplies to a well or associated facility after well completion operations shall be limited to the hours of 8:00 a.m. to 8:00 p.m. except as needed for emergencies.

Exceptions

The Supervisor may grant an exception to the provisions of this Instruction if necessary to protect the environment, public safety, or worker safety.

THIS INSTRUCTION IS EFFECTIVE FEBRUARY 24, 2015.

Date: Feb. 10, 2015

Harold R. Fitch

HAROLD R. FITCH
ASSISTANT SUPERVISOR OF WELLS

APPENDIX A
Supervisor of Wells Instruction 1-2015

Partial list of definitions in the Part 615 administrative rules that apply to this Instruction:

"Decibel" means a unit of sound level on a logarithmic scale measured relative to the threshold of audible sound by the human ear in compliance with the ANSI standard 1.1, entitled "Acoustical Terminology," 1994 edition, which is adopted by reference in these rules. Copies of the standard are available for inspection at the Lansing office of the geological survey division [now OOGM] of the department of environmental quality. Copies may be obtained from the Michigan Department of Environmental Quality, Geological Survey Division [OOGM], P.O. Box 30256, Lansing, Michigan 48909, at a cost as of the time of adoption of these rules of $100.00 each, and from the American National Standards Institute, 11 West 42nd Street, New York, NY 10036, at a cost as of the time of adoption of these rules of $100.00 each. (R 324.1015(3)(a))

"Decibels on the a-weighted network" means decibels measured on the a-weighted network of a sound level meter, as specified in the ANSI standard 1.4, entitled "Specifications for Sound Level Meters," 1983 edition, which is adopted by reference in these rules. Copies of the standard are available for inspection at the Lansing office of the geological survey division [now OOGM] of the department of environmental quality. Copies may be obtained from the Michigan Department of Environmental Quality, Geological Survey Division [OOGM], P.O. Box 30256, Lansing, Michigan 48909, at a cost as of the time of adoption of these rules of $70.00 each, and from the American National Standards Institute, 11 West 42nd Street, New York, NY 10036, at a cost as of the time of adoption of these rules of $70.00 each. (R 324.1015(3)(b))

"Drilling completion" means the time when a well has reached its permitted depth or the supervisor has determined drilling has ceased. (R 324.102(l))

"Drilling operations" means all of the physical and mechanical aspects of constructing a well for the exploration or production of oil or gas, or both, for injection of fluids associated with the production of oil or gas, or both, or the storage of natural hydrocarbons or liquefied petroleum gas derived from oil or gas, and includes all of the following:

(i) Moving drilling equipment onto the drill site.
(ii) Penetration of the ground by the drill bit and drilling of the well bore.
(iii) Casing and sealing of the well bore.
(iv) Construction of well sites and access roads. (R 324.102(m))

"Flare" means a device for the burning of gasses in which the flame is exposed to the atmosphere and burning takes place at a height of not less than 20 feet above the ground. (R 324.1101(f))

"Incinerator" means a device specifically designed for the destruction, by burning, of combustible gasses, in which the products of combustion are emitted to the outer air by passing through a stack or chimney that opens to the outer air at a height of not less than 20 feet above the ground. (R 324.1101(h))

"Nuisance noise" means any noise from a well or its associated surface facilities that causes injurious effects to human health or safety or the unreasonable interference with the comfortable enjoyment of life or property. (R 324.1015(3)(d))

"Oil and gas operations" means permitting activities required under R 324.201, drilling operations, well completion operations, operation of oil and gas wells, plugging operations, and site restoration. (R 324.103(b))

"Operation of oil and gas wells" means the process of producing oil or gas, or both, or the storage of natural hydrocarbons or liquefied petroleum gas, including all of the following:

(i) Production, pumping, and flowing.
(ii) Processing.
(iii) Gathering.
(iv) Compressing.
(v) Treating.
(vi) Transporting.
(vii) Conditioning.
(viii) Brine removal and disposal.
(ix) Separating.
(x) Storing.
(xi) Injecting.
(xii) Testing.
(xiii) Reporting.
(xiv) Maintenance and use of surface facilities.
(xv) Secondary recovery. (R 324.103(c))

"Permit" means a permit to drill and operate an oil or gas well, or both, or an injection well, including associated surface facilities and flow lines. (R 324.103(e))

"Structure used for public or private occupancy" means a residential dwelling or place of business, place of worship, school, hospital, government building, or other building where people are usually present at least 4 hours per day. (R 324.103(m))

"Supervisor" means the director of the department of environmental quality or his or her assistants as approved by the director of the department of environmental quality. (R 324.103(n))

"Well completion operations" means work performed in an oil or gas well, or both, after the well has been drilled to its permitted depth and the production string of casing has been set, including perforating, artificial stimulation, and production testing. (R 324.103(s))

"Well location" means the surface location of a well. (R 324.103(t))