



Rochester Hills

Minutes

Planning Commission

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Chairperson William Boswell, Vice Chairperson Deborah Brnabic
Members: Gerard Dettloff, Greg Hooper, Nicholas O. Kaltsounis,
David A. Reece, C. Neall Schroeder, Emmet Yukon

Tuesday, January 13, 2015

7:00 PM

1000 Rochester Hills Drive

CALL TO ORDER

Chairperson William Boswell called the Special Meeting to order at 7:00 p.m. in the Auditorium.

ROLL CALL

Present 7 - William Boswell, Deborah Brnabic, Gerard Dettloff, Greg Hooper, David Reece, C. Neall Schroeder and Emmet Yukon

Absent 1 - Nicholas Kaltsounis

Quorum present.

Also present: Ed Anzek, Director of Planning & Dev.
Sara Roediger, Manager of Planning
John Staran, City Attorney
Maureen Gentry, Recording Secretary

COMMUNICATIONS

- A) Letter from Dale Hetrick, dated 1/8/15 re: Resignation from PC
- B) Planning & Zoning News dated November 2014
- C) Ordinance No. 171
- D) Memo from Ed Anzek, dated 1/13/15 re: CIP Policy Team Reps
- E) Memo from Ed Anzek, dated 1/13/15 re: Questions - Oil and Gas
- F) Power Point prepared by Sara Roediger dated 1/13/15 Re: Oil and Gas
- G) Power Point prepared by the MDEQ dated 1/13/15 Re: Oil and Gas

DISCUSSION

2014-0368

Informational session with the Michigan Department of Environmental Quality (MDEQ) regarding oil and gas exploration.

Powerpoints (2) prepared by Sara Roediger and Jack Lanigan and Adam Wygant of the MDEQ, dated January 13, 2015 had been placed on file and by reference became part of the record thereof.

Chairperson Boswell advised that City Council had tasked the Planning Commission to research and recommend appropriate oil and gas regulations leading to possible Ordinance adoption. For this meeting, Staff had invited representatives from the Michigan Department of Environmental Quality (MDEQ or DEQ) to give a presentation regarding the permitting process, safety issues and standards, impacts from noise, odor and lighting, truck traffic enforcement, and bond and insurance requirements. Previously, the Planning Commission had asked citizens to submit questions and concerns prior to the meeting, and those received through last Friday were forwarded to the MDEQ to answer. He stated that the discussion would consist of three parts: The MDEQ would make a presentation; that would be followed by a brief power point by Staff; and then there would be an informal question and answer session involving members of the audience, the Planning Commission, the MDEQ and Staff. He indicated that if someone wished to speak, that a card needed to be filled out and brought to the Recording Secretary. He added that he would not like to receive cards after the comment session began. Chairperson Boswell further requested that the questions proposed should be germane to the topic that the MDEQ and Staff would present. Comments that dealt with politics or legal matters in litigation, property values or rights, homeowner association disputes, and those types of things would be considered out of order because they were not part of the agenda. He would not expect any personal attacks. He anticipated that the Planning Commission would hold another Special Meeting, at which they would cover a much wider range of topics.

Mr. Anzek introduced Adam Wygant and Jack Lanigan from the MDEQ, and he noted that both had been in front of the City previously. They were also participants in the open forum meeting at Rochester College in May of last year. Mr. Wygant was the Supervisor for Permits and Technical Services, and Mr. Lanigan was the Area Geologist. He turned the discussion over to them.

Mr. Wygant stated that they were happy to support the Planning Commission. They had done their best to review all the questions that had been submitted. They tried to fashion their presentation to answer as many questions as they could, but they did anticipate that some people might not hear their questions answered, and he suggested that they might be able to address them in the Q & A. He believed that he and Mr. Lanigan were well positioned to talk on the subject, and they had been intimately involved in the issue of residential drilling in Rochester Hills and Shelby Township. Mr. Wygant said that he had been involved all fall with a work group, put together by Senator Brandenburg and

Representative Lund, as well as the Governor's office and a director of the MDEQ dealing with that issue. They understood the concerns that arose in high density, residential areas. He mentioned that they had a staff of 61, and there were about 30 area geologists around the State to handle the onsite supervision of wells from cradle to grave.

Mr. Lanigan maintained that they would not be talking about fracking, and that there was no fracking being considered. He explained that fracking was a completion technique in the oil and gas industry that focused on tight gas reservoirs in shales. The reservoirs underneath Rochester Hills were not those kind; they were carbonate reservoirs that were already naturally fractured. It would be an unnecessary procedure to go in and do hydraulic fracturing, and the conditions were not suitable for fracking.

Mr. Lanigan advised that the MDEQ got its regulatory authority through the Michigan Natural Resources Environmental Protection Act (MNREPA), which was passed in 1994. He explained that there were several different parts to the drilling process. The DEQ would receive an application for a permit, and if granted, there would be drilling, completion and any testing. If the well no longer produced hydrocarbons, or in the case that it never produced them in the first place, the DEQ would oversee the plugging operations and make sure it was done correctly. They wrote the instructions and issued them to companies, and they kept records of everything forever.

Mr. Lanigan noted that they had seven offices, and his area was the largest in southeast Michigan. He had a support staff Statewide. He advised that over 61,000 permits had been issued for wells. They started issuing permits in 1927, although there were many wells prior to that operating without permits. There were currently about 13,000 active wells. In Oakland County, 369 permits had been issued to drill wells. The success ratio for those was only about 35%. There were four applications pending - the companies had been issued permits, but there had not been any drilling. There had been eight wells drilled in the northeast corner of Rochester Hills. Four produced gas and four were dry holes. They were all drilled in the 1970s, and the last one was plugged in 1998, so there were no current, active wells in Rochester Hills. He noted that Macomb County had seen twice as much oil and gas activity as Oakland. The closest well was the Nino Homes well on the east side of Dequindre around 26 Mile.

Mr. Lanigan said that the permit process had many topics that needed to be addressed for DEQ review and approval. A typical application would

have 26-50 pages of information required. That information would then be field checked. The applicants had to tell the DEQ where their water was going to come from. If they were going to drill a water well on their site to support the well or if they were going to buy water from a municipality or bring it in from another location, that had to be revealed in the permitting process.

Mr. Lanigan spoke next about criteria required for location. In cities such as Rochester Hills, where the population was over 70,000, the residential setback was 450 feet. In less populated areas, the setback was 300 feet. The setback for drinking water wells varied, depending on the volume of water pulled out of the well. If it was a single-family residence, the setback was 300 feet, but for municipal wells, such as in Rochester Hills, it would be 2,000 feet. He maintained that just because a company got a permit, it did not mean it automatically had permission to drill a well. There might be other environmental hurdles to get over. If they wanted to go into floodplains or other sensitive areas, they would need to get permits from other organizations within the department. The DEQ had asked companies to look at alternate locations. If a company had permission to drill, it could be moved so it was more shrouded by woods, for example. There were certain limitations to what the DEQ could do, based on the permission of the land owner.

Mr. Lanigan stressed that the DEQ was very protective of water resources, and there were a variety of tools they used. There was a surface casing program and secondary containment features under the drilling rigs so that leaks and spills did not get into the water. There were also ground water monitoring and reporting requirements.

Mr. Lanigan discussed what occurred after a well operator started. First, a big conductor pipe would be hammered about 50 feet into the ground. It was a heavy gauge about 20" in diameter. Then the drilling rig moved in and would drill a hole at least 100 feet below the lowest fresh water zone and 100 feet into competent bedrock. They had a good idea before they issued the permit where the bottom of the hole was. The bottom of the fresh water in Rochester Hills was around 250 feet, so a well would have to be at least 350 feet. When that was reached, another 15" pipe would be set in the hole to the bottom, and then the cement would be flushed down through the pipe. He noted that water had a weight of about 8 lbs. per gallon, and the cement was 15 lbs. per gallon, so the cement would displace the water up through the top where it would be collected at the surface. They required that companies used twice the volume of cement they anticipated necessary to ensure that all the fluids were flushed out,

and so there was nothing besides cement between the rock and the pipe. He added that secondary containment features were an important part of ground water protection.

Mr. Lanigan pointed out a drilling well location in Macomb County, and showed the plastic liner that covered the entire site. All the equipment was on top of the liner, and there was a berm across the site. It was an acre all covered with plastic. He showed the rig, trucks, water storage tanks, back hoes, etc. The operation was done in about 21 days (24 hours a day) and after that, the rig went away. Once the rig moved, a completion rig moved in, which did not work 24 hours a day.

Mr. Lanigan advised that the DEQ oversaw all the well control equipment. There was equipment to close it in case of an emergency. The crews function tested the equipment on eight-hour shifts 3 days a week. They required testing on the well at three or four different stages. A third party would come in and pressure test all the valves and widgets to make sure they had the capacity to control the pressures for safety.

Mr. Lanigan mentioned that a variety of nuisances could occur during drilling, and noise was by far the most common complaint. They had rules that limited noise that could be generated from certain distances. There could be some odors. Most of their rules addressed hydrogen sulfide, which was a very pungent odor. It had never been found in the immediate area of Rochester Hills. Dust could be a problem in the summer when the trucks came in. During a 24-hour a day operation, lights would be on, but they would require the lights to be directed only to the areas needed.

Mr. Lanigan said that quite a few of the questions they received had to do with water usage. Having an adequate supply of water while the water was drilling was most important. When they put a hole in the ground and took rocks off of a pressurized zone, something else was needed to hold the pressure down so the gas and oil did not escape. The DEQ only regulated withdrawal of water if it was over 100,000 gallons per day over 30 days. The Nino Homes well did not even use 100,000 over 21 days. Not all fresh water was used. Some was brine brought in from other sites. It was heavier water than fresh water and when they drilled through rock salt, they did not want to use fresh water, because it would dissolve the salt. All water would have to go into steel tanks. It could not go to the sewer or a ditch or plant. The tank would be put onto a truck and taken off for deep well disposal. In some cases, the water could be recycled. The drilling muds were valuable, and they could be taken to another drilling

location. The brines could be used again in some cases.

Mr. Lanigan concluded that new technology was being discovered all the time. One of the most notable upgrades to their rules occurred in 1989 when they put in all of their rigorous secondary containment features. Since then, there were another 14, 000 wells drilled, and there had been no issues with surface water contamination.

Mr. Wygant brought up fracturing. They realized that there was confusion, because horizontal wells always equaled hydraulic fracturing. He agreed that it did in some cases, but in Michigan, it was the opposite of a lot of other states. They were more than 80% conventional and 20% fractured. In 2014, there were 204 applications. 80 were for the Trenton Black River formation. Of those 80 black rivers, 37 were horizontal bores, and none were hydraulically fractured. Of those 204 applications, 72 were horizontal drills and five were fractured, so he believed that since 2012, less than 20% of the wells in Michigan were hydraulically fractured.

Mr. Wygant noted that his work group met every 2-3 weeks. The Michigan Oil and Gas Association was there, as well as the Michigan Township Association and a concerned citizen from Shelby Township. He referred to a picture of the Nino Homes well, and said that the closest property was 487 feet from the well head to the corner of the foundations. Last June, there was an application in Scio Township that drew a lot of attention. In Shelby Township, what frustrated people was that the drill rig showed up, and they had no clue it was coming. About a year ago, they put in a process so townships were aware of pending drilling. He said that the process worked well in Scio, and they had community engagement. The folks in Shelby did not receive notice, and it created quite a backlash of comments. He and Mr. Lanigan had been busy fielding calls and questions ever since that hit last July. The Shelby situation was a much closer analogue for the concerns of the people in Rochester Hills than the Scio well.

Mr. Wygant stated that about a year ago, the work group made a commitment to the Township Association that they would send applications to every Township Supervisor involved. There were 1,300 townships in Michigan, and not everyone had an established office, but they were committed to notification. Prior to that, only a County Clerk received notification. In the next month or two, the DEQ would be issuing Supervisor of Wells Instructions (SOW), addressing additional criteria to clarify requirements on high density residential drilling. They anticipated ramping up the public notification to residents adjacent to a well. Their

statute and rules were unique, in that they authorized the Supervisor of Wells, who was the Director of the DEQ, to issue special orders, letters and instructions that were stronger and carried much more weight than simple guidance. They anticipated significant best practices to abate the quality of life issues they had heard loud and clear. Those were things like noise, screening requirements, fencing for security and physical changes to the drill rig to get a thud rather than a ping. They were not just window dressing, but actual requirements on industry. The companies would have to do ground water monitoring around the well sites, which had not been required. Companies were required to talk about alternative locations on the permitting applications. It had been pointed out that with horizontal drilling there was some additional flexibility to access reserves from locations other than right at the sites. When Mr. Anzek showed a map of possible drilling locations, he said that people would see how few probable drill sites were available.

Mr. Wygant said that they anticipated using a trigger mechanism in the SOW Instructions, applicable to counties over 750,000 people. For the Nino Homes well, there were 52 homes within the upper quadrant. In Scio, there were seven homes within a quarter mile. That well, situated in the middle of a 20-acre bean field, was considered a totally different situation than one in areas like Rochester Hills or Shelby. Rochester Hills had subdivision after subdivision, and they might not be adjacent to industrial or commercial zoning. People bought with no expectation of having potential land conflicts and quality of life issues. Regarding dangerous situations nearer to people, he noted that there could be a well fire at a well head, but the well pad was meant to provide buffers in case of that. There were a lot of what ifs and catastrophic scenarios, but in Michigan, there had not been a rig burned down since the 1970s, after which measures were put in place. There had been no civilian deaths in Michigan, although there had been oil field workers killed.

Mr. Wygant related that he was heavily involved in well spacing and unit sizes. Staff under him worked directly with folks in the field to review the cementing, the casing plan, threatened endangered species, natural rivers, soil erosion plans, and so forth. Mr. Lanigan was primarily involved in overseeing drilling and construction. Staff was out at a site a minimum of three times a week, but they were in contact much more than that. He thought that it might seem like having 28 area geologists around the State babysitting 20,000 active wells did not seem adequate, but most of the wells were quietly in production and stopping by them once a year to review the conditions was actually adequate. He stated that during the actual drilling, it was important to have a presence to review records.

Since the 1960s, the DEQ has had stringent plugging requirements that had gotten stronger and stronger. At the end of the life of a well, if it was dry or no longer producing, a company would work with someone like Mr. Lanigan who would issue plugging instructions. Some wells were plugged during the depression era where the casing was robbed and a cannonball was put on top, but he assured that they did not do things like that.

Mr. Wygant noted that a lot of residents' emails asked for specific statute citations. He showed where rules could be looked up. Prevention of waste in their statutes was very important, and it was unique amongst environmental statutes. The DEQ had one of the oldest environmental statutes in the State, and it gave the Supervisor of Wells broad authority to prevent surface and subsurface waste - that is, the oil and gas and groundwater, such as wetlands. The SOW also had the power to protect public safety. If there was a situation at the well, the SOW could shut down the operation immediately. Their language actually said, "Thou shalt not create nuisance odor." He thought that nuisance odor was one of the toughest things that Mr. Lanigan dealt with. Someone would occasionally smell a hydrocarbon, and that was the number one reason their field staff were called. It was a potential indicator of fugitive methane or VOCs, so he stated that it was good for their staff to follow up. Mr. Wygant advised that the DEQ had one of the most stringent spills and losses statutes among oil and gas producing states. Some companies from out of state were surprised at how serious the DEQ took small spills. There were some rules by the DEQ's Air and Quality division to deal with them. Regarding ground water, secondary protection and monitoring was very important. He pointed out that landfills had gone from hills that were dumps to highly sophisticated, lined landfills, and the oil and gas industry was no different. They used to put pits in the ground unlined and think they could store materials without them leaking into the ground. They used to set tanks on bare ground thinking they would not rust through and cause a leak. As early as the 1980s, they added the secondary containment requirements, which put heavy millimeter plastic containers underneath tanks. It was a big reason why they had not had impacts to peoples' water wells or ground water contamination that was seen in the earlier history of the oil and gas industry.

Mr. Wygant said that some residents were concerned not only about what the bonding was, but what it covered and did not cover and who paid for it. The DEQ had performance bonding requirements that ranged from \$10k to \$30k. It varied depending on depth and cement used. They also had a blanket bond option for operators that had multiple wells, which went up to \$250k. Bonding was required to access a well and plug, repair or case

the well. The DEQ might claim a bond and plug a well itself. They had to follow procedures so that it was not a taking. If it was an emergency situation, the SOW could issue an order immediately, spend the money and plug the well and use any other cost recovery that might be needed to claim money spent. In addition to bonding, operators and drillers had to carry several types of insurance. It was not a requirement, but the reputable drilling companies would not be in business if they were not carrying liability insurance and insurance for catastrophic failure. That could potentially be a \$10 million liability policy.

Mr. Wygant noted that people had questions about leasing. Specifically, they wished to know where potential drilling targets were and where leases were. He explained that it was outside of the purview of the DEQ. Companies did not come to the DEQ and share specific drilling locations, and no company had intimated any potential drilling sites within Shelby Twp. He maintained that there were very few viable drilling locations in high density areas. People also expressed concerns about emergency management. They asked what it looked like, who responded and who paid for it. He said that fire fighters and emergency responders were prepared to address situations like that. He pointed out a picture of a large well fire burning in a pad, and in that case, emergency response teams would be involved with securing the location to make sure the fire did not spread and evacuating people. There were regional hazmat response teams around the state that would potentially become involved. He had a discussion with the weapons of mass destruction civil support team through the National Guard. Their whole line of business was monitoring nuclear, chemical and biological threats to the State. That was more severe than a well fire, but they would be called out to support local emergency responders and hazmat teams. They did the most dangerous work.

There had been a question about what kind of money went into the local fire departments to stand ready, and if companies paid for any of it. The DEQ did not get involved with that, but when he talked to companies about their corporate social responsibility, he advised that it was good to be in contact with the first responders. The DEQ had requirements for hydrogen sulfide, and companies had to have emergency contingency plans in place and to be in touch with the County. He felt that it made good business sense for a company to be in contact with a city's first responders, so they were aware of the nature of the operations.

Mr. Wygant observed that people did not want to talk about how a well was drilled. He did not want to let that go, because part of the DEQ's safety

record had a lot to do with cementing and casing. He showed a well from the 1930's, which the DEQ re-plugged, because it had not been done right originally. The cement and steel was still competent after nearly a century. There were studies that showed that up to 5% of wells had integrity issues. In Michigan, they had plugged about 570 wells with the DEQ's Orphan Wells Program. That meant that out of 60,000 wells, less than 1% that had been abandoned had been plugged with oil and gas funds. He noted that at each stage of well construction, each string of the casings was tested to see if it held pressure. If there was a problem with the cement or the joints, Mr. Lanigan would work with the company to identify the issue, and they might have to do some remedial cementing. It would be tested and abated before it went into production.

Mr. Wygant mentioned a woman employee (Christie) who worked in an area called the "doghouse." It was the war room and controls near a drilling well platform. In the photo he showed, Christie was pouring over driller's logs. When she was on site a few times a week, she would look at the logs in which the drillers recorded their information, such as the rate of penetration of drilling. When the top of different formations were hit as they went down, graphs were produced that showed what the rate of drilling was, so there were checks and balances, and she did not have to just take someone's word. When Mr. Lanigan went to a site, he acted somewhat like a sleuth, seeing if stories matched and reviewing the records. Mr. Wygant said that the DEQ had a good relationship with the oil companies, but it was Mr. Lanigan's job to ascertain the conditions and see if something was leaking, for example.

Mr. Wygant said that people asked about escalated enforcement and when fines were levied. The DEQ had a big toolbox it used for compliance and enforcement, but it started with Mr. Lanigan doing inspections. The Lansing crew received a lot of records, and they had excellent records going back to the 1920s of where wells were located. If a new well was coming in, they could be confident about what other wells were around. With an injection well, it was very important to know what wells were in the area, how they were cased and what formations they were in. There were other producing states that did not have the strength of records that Michigan had. They were down to one orphan well in Muskegon that they were struggling with. The casing was robbed in the 1930s and there was about 280 feet where there was no pipe. There was a cannon ball sitting on it, and there seemed to be a slow leak they had been investigating. In places like Pennsylvania, they had plowed over orphan wells, and they had about 300k-500k wells drilled, but they did not know where they all were. Michigan's list was down to one critical one they

would really like to solve and a handful of wells for which they were not satisfied how they were plugged.

Mr. Wygant said that dependent upon the severity of a problem, Mr. Lanigan would issue a compliance communication, which could be a phone call or email, document the problem and tell the company to take care of it. They would be given x amount of time to do that. If it did not meet Mr. Lanigan's expectations, he would issue a notice of violation. If the company was unresponsive, the DEQ first gave an opportunity to show compliance. If nothing happened, it could be referred for escalated enforcement. The company might be willing to enter into a consent agreement, and the DEQ could establish conditions for correcting the noncompliance. If that did not work, it would be referred to an enforcement specialist, who could put the company on a holds permit, and they would not drill another well until the situation was resolved.

Mr. Wygant mentioned that spills and fines were raised by some residents. There were very specific questions, such as what type of chemical composition or chemical formula structure was used. He admitted that he did not have that information for a typical well site. There had been muds that had been used and acid, which was a mud additive. He said that it was typically a conversation that came up with hydraulic fracturing, because there was a larger suite of chemicals used at those sites. A company was required to have material safety data sheets on site in accordance with Federal statutes. Many times, they were put out by the access road. As part of the SOW Instructions, they anticipated making that a requirement - putting out a mailbox at the access road for the public. The DEQ had a very strong reporting requirement. If there were accidents, they had to be recorded, and they were required to notify Mr. Lanigan within eight hours. He remarked that Mr. Lanigan was tethered 24 hours a day. Any spill over 42 gallons was required to be reported within eight hours. Those spills were typically remediated within 45 days. Some might go longer, but the vast majority were small. Spills under 42 gallons still had to be reported. If a spill was noticed by DEQ staff and cleaned up within an hour or two, it did not have to be reported within eight hours, but all spills had to be reported.

Mr. Wygant pointed out a picture of a typical water well, which was required to have a ball valve. A little over a year ago, he was in a discussion with Michigan Association of Public Health, which was concerned about the water supply wells on site. The DEQ worked with the stakeholders and the Water Wells Drillers Association, and they strengthened requirements so that the wells had to be cemented from top

to bottom. They had the most stringent requirement. If there was not water available, it could be brought from elsewhere. They were not allowed to drain a stream or lake for the water. It would be stored on site in steel tanks or in a drilling pit. In a residential area, there could not be a primary or reserve pit; they had to use steel tanks. Unused water would go down a disposal well, and he commented that Michigan had good disposal zones.

Mr. Wygant advised that companies were required to have the water supply well at least 50 feet from the well head. He said that a primary mud pit would be filled with 400 barrels of water and perhaps another reserve pit would be filled with 400 barrels, so between 30k-40k barrels of water could be used on a site for a 21-day drilling. If a company thought that additional makeup water was needed, they might have three storage tanks on site, which would give them an extra 500 barrels. Mr. Wygant claimed that the amount of water used was very minimal. With fracturing, between 30k gallons of water up to 21 million gallons could be used. He explained that the only time water was used in production was if a secondary recovery was done. That was where water would be injected to bank the oil, but he did not believe that was very common.

Mr. Wygant mentioned that people had concerns about flow lines and pipelines. Flow lines was piping that connected wells or a well to a surface facility. If there was a common carrier or purely a gas pipeline, it would become the purview of the Public Service Commission. Those wells would be pressure tested, and there were special materials requirements for when they contained hydrogen sulfide gas, because that could be corrosive. People wanted to know what regulations were in place for air emissions. He was trying to understand how many components fed air quality regulations at the Federal and State levels over the State's oil and gas wells. The State had standards specifically within its oil and gas rules related to hydrogen sulfide. A lot of the different Federal statutes pointed to leak detection and reduction, for which there was a general requirement for companies to take care of fugitive methane or organic compounds coming out of the well sites. When a well was drilled, there was not any air permits on a drill site, so the 21 days of drilling were non-stationary sources. They were typically diesel engines on the drill rigs or pumps, cement trucks or semis coming and going. They did not require permits, and they were exempt from Federal statutes and the DEQ's requirements. When they got into more permanent installations or if using a compressor, a company would have to obtain a permit from the DEQ to install. At that point, conditions would not necessarily be monitored, but they would be aware of the equipment. It would not be until there was a

production facility when there would have to be an aggregation of sources and throughput to meet requirements under the Federal regulations for things like renewable operating permits. At all sites, there were methods for leak detection and reduction. He had been involved with the Environmental Council of States since last summer representing Michigan, and the administration was very focused on fugitive methane and VOCs, and he thought they would be seeing requirements being strengthened soon.

Mr. Wygant stated that it would be a very unique situation to have a flare in a residential area. A flare would be put on drilling activities in case there was a situation with gas getting too near a drill rig. They would destroy any hydrogen sulfide or methane to combust it and get CO2 and water vapor. A flare would have to be at least 20 feet tall and at least 300 feet from combustible materials. They had people with expertise in air quality, and they were going to be brought together to have a more focused work group. They had applied for and received a joint grant from the EPA to purchase a \$100k camera, which took pictures of fugitive methane and VOCs. That would help with compliance assistance to make sure companies were meeting best practices in leak detection and repair. The DEQ had substantial rules to deal with hydrogen sulfide. If it was even suspected, it would have to be part of a drilling plan of a company. If it became sour by hitting compartmentalized oil or the oil changed over time, the DEQ would work with a company to retrofit and make sure they were up to speed with the rules.

Mr. Wygant commented that they were really proud of their improved access until the Nino Homes incident. They thought it was a big deal to commit to making sure that every township supervisor had access, so they could share it with their constituents. In addition to notifying them, the DEQ set up an email drop box for their permitting staff. They were required by statute to put out a weekly list of any permit applications. People could get on a list to receive that information. The citizens of Scio Township were not happy that the DEQ issued a permit there. He felt that the community engagement worked in Scio, because they received over 100 comments. They did a public meeting with a local representative. He and his staff met with the League of Conservation Voters. The engagement worked, even if the residents did not get the result they wanted.

Mr. Hooper said that Mr. Wygant mentioned that the Supervisor of Wells would be issuing new instructions for areas that had 40 homes within a ¼ mile radius. He asked what exactly the new instructions would be, and if it would include setbacks, not allowing installation of a well, and things like

that.

Mr. Wygant responded that the citizenry expectation was that there would be no well. The SOW Instructions would not do that. He reminded that they were subject to takings laws from a constitutional standpoint, and there were property rights. They worked collaboratively to come up with best practices that drove at the quality of life issues they heard in Shelby Twp. and from discussions in Rochester Hills. They took the comments heard that people should not be treated a certain way. Mr. Hooper asked if the City could get a copy. Mr. Wygant said that it had not been issued publicly yet. He said that he would get it out as soon as possible. He advised that they were not addressing the setback issues, because Michigan already had some of the most stringent setbacks of all producing states. There were two states that had higher setbacks. He knew that there were a couple of communities around the country that had larger setbacks, but in their estimation in Michigan, they were quite adequate. He read some highlights from what could be included in the Instructions: Notification; notice of permit application and decision; evaluation of feasible and prudent alternatives; plans and schedules for berming, screening or closures; provisions to reduce noise and prescribe daytime and nighttime levels; installation of one monitoring well; communication with local the Fire Marshall and emergency responders; posting of identification sign at the entrance of the drilling location; use of tanks to store drilling cuttings and fluids; shielding of drill rig lighting; supervisory people at the location for safety and security; fencing around the perimeter of the location; site security during drilling; posting of the material safety data sheets onsite; capture of all gas and vapors and burning in a shrouded flare that kept light down and helped with a more adequate burn; and transportation of equipment and supplies after well completion. Mr. Lanigan had mentioned the smaller rigs that came onsite after the well had been drilled, and that there would be a lot more flexibility with timing to not go 24/7. He stated that it was not final, and there was a risk of him putting it out there. The commitment was that they fully anticipated issuing some sort of Instructions along those lines over the next couple of months. They were told to come up with solutions to the quality of life issues, and he suspected that the DEQ would move forward with it soon.

Mr. Anzek stated that when they met last October, Staff showed a quick map that was put together with the MIS Department. It generated some interest, so they did a little deeper dive, looking into Part 615 rules that MDEQ used as it evaluated and issued permits. He read some information required with all applications: All fresh water wells within 600

feet of a proposed well head; all public water supply wells within 2,000 feet (public water supply might be privately owned, but it was considered public if it served 15 or more households); all surface waters within 1,320 feet (1/4 mile), which included lakes, ponds, rivers and detention basins holding water; floodplains associated with surface waters within 1,320 feet; and wetlands within 1,320 feet. Those were not necessarily prohibitions, but they were areas of concern that the DEQ reviewed to see if alternative locations should be looked at because of an environmental issue. It also created a higher level of scrutiny and would bring in other departments in the permitting process. Staff wanted to translate that information to a map that showed what areas would be studied further. He showed a map with fresh water wells. The City had quite a few in the City, and the map showed a 600-foot distance around each well. He showed a map with public water supplies. The City of Rochester had one, and there was a private one by Crooks and Auburn. He observed that surface waters within 1,320 feet covered the City. The map with floodplains showed those by significant rivers. The City had a lot of wetlands, so there would be significant areas of concern. Putting all those maps together, he showed that quite a large portion of the City would be a significant area of concern or significant study area the DEQ would take into consideration with any application.

Mr. Anzek pointed out that there were specific distances that prohibited the placement of wells. He cautioned that any prohibition could be waived or modified by property owners within those setback distances. If the potential drilling company got all the property owners affected by the radius to sign off, the prohibition by DEQ could go away. He mentioned that there were four parts to the prohibition which used the word "shall." The well "shall not be located less than 300 feet from existing, reasonably identified, recorded fresh water wells used for human consumption." Those were the wells that the City and the County knew. The DEQ also maintained a list of wells. The next would be "existing structures used for public and private occupancy as defined in the MDEQ standards." That would be any building that could be occupied for more than four hours per day, and it would include pretty much everything but a barn and a shed. He showed existing areas maintained for public recreation, which included parkland, open spaces owned by the City and recreational playgrounds owned by the schools. The rules did not just include 300 feet from a park; they also included the parks. To put in a well, it would take a waiver from a school or the City. Regarding surface facilities, the rules were "not less than 300 feet from the edge of traveled portions of existing interstate, U.S. or State highway." The City had three, including M-59, Rochester and Auburn Roads. There was a provision that there

was an additional increase of distance of 450 feet from a residential structure, including homes, apartments, senior housing, hotels, etc. The industrial areas, landfills, Oakland University and some parts in the northeast part of the City were not covered. He showed a map with red areas that were not covered by any of the setback prohibitions established by the DEQ. There were very few. He indicated that landfills were complicated, because they had ground that was not settled. Landfills settled as they biodegraded, and he was not sure if it would be suitable for an oil company to seek anything on a landfill. He mentioned that the housing information used by MIS was about six months out of date, and there was a lot of housing activity going on in the northeast portion of the City. He felt that once that map was updated, the red areas would shrink.

Mr. Anzek said that they wanted to show the maps because in talking to the oil companies, they had been seeking leases along the Tienken corridor. They started in the western portion of the City. He reiterated that there were not many sites to put in a well in the City. He noted that the maps showed the MDEQ's standards. If the City had setback standards, they could not be enforced outside the City, but MDEQ's could. Their distances extended beyond the City's corporate boundaries. Local Ordinances could not be enforceable in Auburn Hills or Rochester. It was his opinion that it would be difficult to get a well permit, and he could not speak for MDEQ, but they might get even more stringent as they continued.

Chairperson Boswell asked if there were any wells in the State built on landfills. Mr. Wygant said that he could check. He said they had the reverse situation, where sometimes a company wanted to place a landfill where there already was an old well. They would have to make the land stable, and the DEQ would be involved.

Mr. Wygant said that if there were whole subdivisions that opposed drilling, he thought they were doing exactly what they should be doing - not leasing. A landowner could waive the setback requirement from the house, so one of the best protections would be communication among neighbors.

Mr. Anzek said that Mr. Lanigan had mentioned that there had been eight permits for wells in Avon Township (pre-Rochester Hills) in the very northeast corner of the City. He said that a company could meet the setback requirement in that area, but he reminded that all those wells had been capped.

Chairperson Boswell opened the public comments at 8:40 p.m. He noted that although it would not be as formal as a Public Hearing, comments should still be directed to him. He noted that there would not be dialogue back and forth with the MDEQ, and that all germane questions would be answered, if possible. If not, he assured that they would be by the next meeting.

Erin Howlett, 3597 Aynsley, Rochester Hills, MI 48306 *Ms. Howlett thanked the Planning Commission for holding the meeting. She appreciated Mr. Lanigan and Mr. Wygant coming out again. Over the last several months, she said that they had been patient in answering their questions. She felt that public engagement was very important, and she looked forward to the new Instructions. Regarding notification, public input and proper education, she was a little concerned that in Rochester Hills, there were not proper expectations. There was the thought that there was a difference between it being unlikely to have rig placement in the City and zero chance and the number of people who said it would never happen. She said that it was not necessarily what was being said, but it was what people were hearing. She wanted to be realistic, and she thought that activities were coming to Oakland County, and it was not a good situation if people understood that Rochester Hills was somehow out of the picture. She said that there were certainly some private properties in Rochester Hills where there was enough acreage that people could lease for a rig site and even get rid of some of the setback. If someone had a dumpy home, for example, it could be knocked down, and all of a sudden there would be five or ten acres. She was hopeful that there was more opportunity for public engagement because whatever happened and whether things moved forward, she felt that everyone had better outcomes if they had proper expectations and understanding. It was said that it was hard to tell people not to talk about hydraulic fracturing because a year and a half ago, she thought that fracking meant drilling with chemicals, and that was not the case. It was very narrow and very specific and not what they were looking to do. There was a Shelby article where a reporter talked to the company operating there. The representative said that there would be no hydraulic fracturing and therefore no chemicals. She did not think people understood that there was a distinction between horizontal drilling and well completion and that no fracking did not mean zero chemicals. It was her understanding they would do an acid matrix stimulation or an "acid job."*

Robert Kendig, 2484 Wortham Dr., Rochester Hills, MI 48307 *Mr. Kendig said that he was still fascinated with Public Act 451, which was*

enacted in 1994. It was updated in the Senate Bill, but he had not heard the outcome. He claimed that it was fascinating because the State set the 450-foot setback requirement, and before someone could drill a well, the Supervisor of Wells was supposed to hold a meeting that took a poll of 100% of the people in the setback. He did not think that meeting ever occurred, and perhaps that meant that no one was 450 feet from the well, or that the well had not been drilled. He said that Mr. Wygant talked about a mail drop in Scio, and that they got over 100 comments. Mr. Kendig stated that the well went against the 100 people. If the 100 people were asked if it was a success or not, they did not get a result that was favorable to them, and he did not know if there were 1,000 people that thought what they did do was right. It sounded like they said the DEQ would listen but do whatever it wanted.

Steve McCabe, 2518 Topsham, Rochester Hills, MI 48306 Mr.

McCabe asked Mr. Lanigan and Mr. Wygant if they had two homes to choose from and all things were equal, if they would buy a house 450 feet from a well or one in a well-free zone.

Chairperson Boswell questioned what they had to do with the topic at hand. He indicated that it had to do with property values. Mr. McCabe believed that it had to do with safety, and the gentlemen were the safety experts. He stated that there was risk. Chairperson Boswell explained that their job was to enforce the safety regulations. Mr. McCabe asked Chairperson Boswell if he did not think the question was valid, and Chairperson Boswell agreed that he did not. Mr. McCabe said that they were the experts, and he was asking the experts. Chairperson Boswell restated that the question was invalid.

Mr. McCabe asked about traffic and about where, what and how much. He asked if the City would define where all the traffic would take place. He wondered what the trucks would look like and how many there would be. It seemed to him like the City was jumping through so many hoops - distance restrictions, pulling permits, dealing with safety, making sure something was properly drilled, making sure the right chemicals were being used, and making sure that wells were being constructed properly. They were monitoring air. Tons of money was being spent for proper insurance, and there were hazmat measures. He thanked the City for that, and he was very impressed. He knew that City Council still had to deal with an upset tax base. He said that he had a lot of other things listed that he could not talk about. He wondered how it was all worth it. He wondered why they were going through all the trouble, and he thought it would be easier to just say "no."

Brian Dorey, 2525 Roseview Dr., Rochester Hills, MI 48306 Mr. Dorey said that he attended one of the Council meetings a while back. All his questions had been answered. He thanked Staff for putting the presentation together. He had apprehensions before, but it was clear to him that the State and the City were looking out for the best interests of the people of Rochester Hills to make sure everything was being done safely and according to the law. He realized that the City was limited as to what was done on private property, but he felt confident that the City would continue to make sure that everything would be upheld and be done safely. He wanted to thank the Federal, State and local level for the hard work in protecting the people's interests in Michigan.

Melinda Hill, 1481 Mill Race, Rochester Hills, MI 48306 Ms. Hill wondered how someone could obtain information on old wells. She noted that she lived in the northeast quadrant of the City, and she believed that the flow lines from some of the well heads ran through her property. They were run under Stony Creek and through her property to Washington Rd., and there were wells north and south of her. There were flares that ran constantly, and the smell of gas was there quite often. She was not the original owner of the property - she bought in 1987, and she did not get the mineral rights. She would like some information about what existed and the conditions. They did not pull all the lines out, because it was destroying her trees. She noted that the property was zoned Residential Estate in her area, which required an acre or larger minimum lot size. She stated that it created an issue, and there were a few red spots in that area. The things brought up by Mr. Anzek about restrictions that would potentially apply, and it covered a lot of her area, concerned her, and she would like to know if the rules had changed since the wells existed. None of the things mentioned restricted anything in the past. She wondered if the rules had changed since then so that this would not happen again out there. She asked what would be the likelihood of placing wells where others existed prior and had been plugged. Regarding the Nino Homes well, she questioned if they would do any horizontal drilling that would cross County lines. She was extremely close to that well, and she had no idea what direction they intended to drill if that continued. She commented that she definitely heard the noise that went on for 21 days.

Philip Barker, 1434 Burhaven, Rochester Hills, MI 48306 Mr. Barker said that Mr. Wygant showed a slide that mentioned water wells and removal of water from the ground. Mr. Wygant had said that there were 30-40 thousand barrels, but the slide said gallons, and Mr. Barker asked

for clarification. He stated that there was a big difference between a gallon and a barrel. If it were barrels, it would take 1,680,000 to complete a well. Throughout the presentation, Mr. Barker said that there were numerous references about what would happen in townships, and very rarely was the word city mentioned in some of the rules. He wondered how home rule applied to some of the information cited, specifically relating to townships and if that was different for cities, that is, if the DEQ had different approaches for cities versus townships and the power of the board in regards to home rule. He said that one of the slides was about drilling permitting and the documentation of the wetlands and streams and so forth that were close to a drilling area. It was indicated that a person obtaining a permit had to document that information, but he wondered if it precluded drilling in those areas. He asked if it was documented, and then the DEQ just rubber stamped something. One of the presenters mentioned that they went out and checked the activities that went on during the drilling and production and monitored the activities that went on. A doghouse was mentioned, where forms were reviewed, and he asked if any confirmation was done to confirm that the numbers were accurately recorded. He asked if there was a compliance check that made sure the numbers were square and real. There was a slide about insurances that companies had in place, and he questioned if they insured the company's loss for plant and equipment and if there was an explosion if it affected the operator, or if the insurance was for the citizens or the community. He asked who would get compensated in the event of a catastrophe.

Jay Arnold, 3141 Tamarron Dr., Rochester Hills, MI 48309 Mr. Arnold said that the City's residents and taxpayers had to ask if it was worth it. Oil was going for \$47 a barrel currently, and he remarked that OPEC was going crazy. He said he knew because his family lived in an OPEC nation in South America. He saw a quote earlier, "When an investment decision is made," and he claimed that this was an investment decision for the City, "it was always critical to evaluate the future productivity to determine if it was a worthwhile investment. An investor is able to gauge a rough estimate of what the future return of an investment is. The best step is to simply forget it and move on. The risk/reward is not even." Mr. Arnold stated that it was from Warren Buffett. Mr. Arnold said that he would rather listen to Mr. Buffet, who knew a thing or two more about finance, than an oil company did.

Chairperson Boswell closed the public comments at 9:00 p.m. He asked for clarification about Mr. Barker's question about gallons versus barrels. Mr. Wygant explained that each pit was 400 barrels, or about 32,000

gallons. Chairperson Boswell asked if there were differences in how the DEQ handled a city or a township. He realized that there was a difference if a City had over 70,000 residents. Mr. Wygant said that there were additional requirements and setbacks tied to the 70,000. One difference was that city zoning was not pre-empted under the Zoning Enabling Act, and it was for townships. He said that he did not know about direct notification, and he would check the statute to see if cities received notice. They were including township supervisors, but he was not sure if it was being sent to mayors or city managers. Chairperson Boswell said that there was a question about the doghouse and if figures were double checked.

Mr. Lanigan maintained that he was the one doing the double checking. He added that it was very hard to keep a secret on a drill site. There were about 15 people working for 15 different companies, and the documents included pay lists, and they all wanted to get paid. There were mechanical devices on a rig that showed how far something was drilled, what rate of speed, and where they were from the day before.

Chairperson Boswell asked Mr. Lanigan about truck traffic. Mr. Lanigan said that he had talked to Councilman Tisdell in the past, and Mr. Lanigan made up a list using assumptions about how much oil and water would be produced and how much truck traffic would be associated. He did not have the numbers offhand. The maximum a well in Michigan was allowed to produce was 200 barrels of oil a day, and that would use one tanker truck. He said that there were very few that produced at that weight. He thought that there would be less than 20 trucks a month once the well was in production. There would be deliveries to the well while it was being drilled to bring in and remove materials or bring in a new drill pipe. The crews changed out every eight hours (8-10 people). He did not feel that there would be a lot of truck traffic - perhaps two flatbeds or tankers a day - during drilling.

Mr. Wygant mentioned that in Shelby, the company thought they did a couple of things right. They set up during night time hours. It was not uncommon for a drill rig to pull in after hours to set up. The company considered bus routes and commuters. They worked with the Road Commission to determine the best route for the trucks. However, it surprised the citizens, who felt like they came in after dark so people could not tell.

Chairperson Boswell clarified that by the rules, the only person that had to be notified was the Township Supervisor in Shelby. Mr. Lanigan agreed,

and he said that the County Clerk was also notified. Chairperson Boswell asked if that would change under the new Instructions. Mr. Lanigan replied that they made a policy decision to notify every township supervisor, no matter what its population was.

Mr. Anzek said that he had read the rules he felt pertained to Rochester Hills under 324.61525, Permit to Drill Well, Application, Bond, Posting Fee, Issuance, Disposition of Fees, Availability of Information Pertaining to Application, Information Provided to City, Village or Township. Under subsection 4., it stated that "The Supervisor shall provide the information under subsection 3., which was all the information regarding the application to the County in which the oil or gas well is proposed to be located and to the City, Village or Township in which the oil or gas well is proposed to be located, if that City, Village or Township has a population of 70,000 or more." If a well was applied for in Rochester Hills, he confirmed that the City would expect to be notified. He stated that there had been no well applied for in Rochester Hills, which went to the question as to why there was not a public meeting held regarding a well.

Mr. Wygant agreed. He added that the DEQ would not hold a public meeting for every well. There were specific instances when an evidentiary hearing could be requested by people who had standing. As part of the SOW Instructions and the discussions they had, the DEQ was very much about compliance assistance and outreach. If a Planning Commission, Mayor or Township Supervisor requested a public information meeting for education ahead of a well, the DEQ would commit staff to take part. Mr. Wygant noted that he had said that the public engagement in Scio Township worked. One gentleman mentioned that the DEQ got lots of comments, but the DEQ did want they wanted anyway. Mr. Wygant explained that the fact of the matter was that they had sets of regulations and statutes developed over time, and because of people's paramount property rights, if a company had land acquisition and got a permit that met all of the setback and other requirements, it would be illegal to not issue a permit. Despite public sentiment and public engagement, it would be arbitrary for the DEQ to not follow its own statute.

Chairperson Boswell noted that Ms. Hill had asked when the wells in her area were drilled, and if they were done under a different set of rules than today's. Mr. Wygant said that they were drilled in the 1970s. He referred to the DEQ's website, and said that people could see the wells they were interested in and do a data search. Chairperson Boswell said that as a point of interest, if the wells in that area had all been capped, he asked what the odds were that a company with its new techniques could come in

and try to get oil again.

Mr. Lanigan explained that even though the well was drilled about 3,000 feet down and produced gas for 20 years, there was no reason not to believe that there could be gas or oil at a deeper horizon in the same location. He agreed they could go back in and drill deeper.

Mr. Anzek asked if a company would go through the restart of the whole process to unplug a plugged well. Mr. Lanigan agreed they would have to apply for a new permit, and the City would be notified.

Mr. Anzek recalled that there was a question about insurance. He observed that it would be about how the policy was written. It would be on a case-by-case basis. He had thought he made it clear that the areas of concern (wetlands, waterways, etc.) would be areas scrutinized, and that it would not be a way to prohibit a well. It did not exclude or not allow, but it was something the DEQ wanted on the permit application. He highly doubted that the DEQ just rubber stamped things. He had been in the doghouse watching the equipment operate. Mr. Lanigan gave him a tour, and he thought it would be very difficult to bogus the equipment. Regarding traffic, he agreed there would be some trucks when drilling was going on. If the well were successful, the materials would be moved. He asked if gas was trucked or always piped. Mr. Lanigan answered that it was piped.

Mr. Lanigan mentioned that there was a comment about someone drilling across County lines or different jurisdictions. He said that it could be done. The directional wells were several thousand feet underground, so there would not be any trouble for infrastructure or right-of-ways in crossing County lines or roads.

Mr. Wygant said that Mr. Barker asked about setbacks and identifying wetlands, and he stated that the DEQ permit to drill would not include wetlands protection Part 303. He said that it would be very rare that a well could be located inside of a wetland. He had seen rare circumstances where a company had to apply for a wetlands permit to extend a well pad, sometimes temporarily, but the wetland folks put companies through a rigorous review and an alternatives analysis. Regarding Ms. Hill's question about how the rules that had changed, if the wells were drilled in the 1970s, there had been several subsequent rule changes since then. He still considered the 1970s in the modern era of regulations. If they had been drilled in the 1940s, it would have been a different scenario.

Mr. Schroeder said that Mr. Wygant made a statement that City Ordinances would not be pre-empted in the process. Mr. Wygant meant to say that the Zoning Enabling Act did not pre-empt cities from passing Ordinances over oil and gas drilling and production. The Zoning Enabling Act back to 1943 did pre-empt townships and villages from doing so. Mr. Schroeder asked if Rochester Hills would be exposed to a takings lawsuit if it imposed a greater setback than 450 feet, because it would be greater than the DEQ's requirement. Mr. Wygant said that he was not sure what creating regulations that went further would do. He did know that if the City went too far, it could open itself up to a takings. Mr. Schroeder asked about private citizens' property rights. He asked if the City would be pre-empting a private citizen's rights, regardless of what the City said, if that citizen decided to lease to a company and have a well. Mr. Wygant said that it was outside of his "wheelhouse."

Ms. Brnabic noted that she had been trying to take notes on the new best management practices proposed to deal with residents' issues. She was surprised that there was not a requirement to notify a city's Fire Marshall when something was happening locally. She would like to see that. She felt that they could have emergency management systems in place for hazmat or a civil support team, but she stressed that the local team should absolutely be notified if something was going on in their community. Ms. Brnabic read from her notes that Mr. Wygant had discussed notification of a permit application, permit to drill action, berms and screening, communication with the local Fire Marshall, shield lighting, fencing and security on an active site and transportation of supplies and rigs. She asked if there was something she had missed that they were considering. Mr. Wygant understood the concern about communicating with the Fire Marshall. They believed that the regulations they had served them very well. They had a safe track record, but they would be adding Instructions for high density areas. He did not think Ms. Brnabic had missed anything. From his perspective, some of the things being put forward were not window dressing. Ms. Brnabic said that they had excellent practices that had developed over time, but she suggested that there was always room for improvement. She was glad they were hearing the concerns and trying to deal with them.

Mr. Dettloff thanked the gentlemen. He said that he had learned a lot, and he appreciated that they took time out of their schedules to talk with them. He believed that it was obviously not a rubber stamp issue. The DEQ listened to concerns, and they were available when issues came up, and he felt that it spoke volumes for the DEQ. He asked where Michigan ranked when it came to regulations. Mr. Wygant said that the groups that

had compared setbacks and requirements for leasing, bonding or whatever it was, found that Michigan continually ranked in the middle to top tier. They were proud of their regulations, and their track record spoke for itself. He said that he could look for the stats. Mr. Dettloff asked if the Instructions would be available at some point in the near future. Mr. Wygant expected that the DEQ would move forward soon with that. He helped negotiate, and in the discussions, they would move forward because it was the right thing to do. He did not want to say that they had a 100% committal until everything was signed.

Mr. Hooper asked the latest on the pending legislation to modify Senate Bill 1026. Mr. Wygant responded that there was a new legislature, so bills that did not get passed were dead. Both bills were defeated, and he did not know if anyone would introduce new legislation.

Mr. Hooper brought up Trenton Black River (rock formations), and he asked the vertical distance. Mr. Lanigan said that it was about 4,500 feet straight down. Mr. Hooper asked the maximum horizontal drilling length from a vertical site. Mr. Lanigan said that it would be two miles maximum. The record was a little over 10,000 feet in northwestern Michigan. Mr. Wygant said that the longer horizontal measures he saw in Kalkaska were two miles down and two miles long. The reason why they had horizontal wells in Trenton Black River was so they could come in at a certain zone to optimize how much they got out of the well and to have a longer productive life. Mr. Hooper asked the typical duration to create a vertical and horizontal well. Mr. Lanigan advised that drilling the hole took 21 days. He said that the Shelby well was drilled down about 500 feet, and then it went 1,800 feet horizontally, and then it was drilled vertically again. He stated that it was not a horizontal well. Mr. Hooper asked what the typical circle of influence was when the drill hit the location of a deposit. Mr. Lanigan said that the rule spacing for wells in the area was 40 acres. The well had to be set back 330 feet from the boundaries, so the influence from any other areas dissipated before it got to the unit boundary. Mr. Hooper asked if the operation had to be 24 hours a day when the drilling was vertical and horizontal, or if they could only do it during daylight hours. Mr. Lanigan said that drilling had to go on 24 hours a day. It was a safety factor. They might encounter hydrocarbons or a higher or lower pressure zone, so the pumps needed to be running all the time to keep the fluid circulating through the well. If it were shut down, there could be a gas buildup and a blowout. Until the pipe was cemented into the hole, the work could not be stopped. Mr. Hooper asked how a company could comply with a noise ordinance in a high-density area and still permit a 21-day operation. Mr. Lanigan said that he had not read the City's Noise Ordinance, so he could not answer. Mr. Wygant said that he would

follow-up and get back with Mr. Hooper. Mr. Hooper thought that if someone could even site a well in a residentially zoned neighborhood, that it would be hard to comply with the City's Noise Ordinance. Mr. Wygant said that West Bay (oil company) did some noise monitoring, and so did Mr. Lanigan with the Nino Homes well. A lot of the noise was buried in background noise, especially during the day, but the issue was at night. He was not sure who pre-empted.

Mr. Anzek noted that Mr. Wygant had showed a slide and discussed 45 decibels at 1,320 feet away. He asked what he could compare that to, such as a lawn mower or car driving by. Mr. Lanigan said that he had a chart for that in his car. He thought that 45 decibels would equal the inside of someone's house during the day. He investigated a complaint in Addison Twp. about a noise issue on a pump jack. That was about 65 decibels when running. Mr. Anzek asked Mr. Lanigan if he could provide the chart. He informed that their presentation and the maps would be put on the City's website.

Ms. Brnabic wanted to echo Mr. Dettloff's comments, and she complimented the gentlemen, and said that they were very informative and gave a great presentation, and she thanked them.

Mr. Anzek also thanked Mr. Wygant and Mr. Lanigan. As soon as Staff received questions from interested people, they were sent to them, and they tried to answer as many as they could. He thanked the City's MIS Department for putting the maps together. He thought that the maps were very telling as to where any well company might pursue a well.

Chairperson Boswell thanked Mr. Wygant and Mr. Lanigan for coming, and he agreed that the presentation had been very informative.

ANY OTHER BUSINESS

2015-0016 Appointment of two Planning Commission representatives to the 2016-2021 Capital Improvement Plan Policy Team

Commissioner Schroeder advised that he would like to continue serving, and Chairperson Boswell also volunteered.

MOTION *by Brnabic, seconded by Reece, the Planning Commission hereby approves the appointments of C. Neall Schroeder and William Boswell to serve on the 2016-2021 Capital Improvement Policy Team.*

A motion was made by Brnabic, seconded by Reece, that this matter be Approved. The motion carried by the following vote:

Aye 7 - Boswell, Brnabic, Dettloff, Hooper, Reece, Schroeder and Yukon

Absent 1 - Kaltsounis

NEXT MEETING DATE

Chairperson Boswell reminded the Commissioners that the next Regular Meeting was scheduled for January 20, 2015.

ADJOURNMENT

Hearing no further business to come before the Planning Commission, and upon motion by Mr. Reece, Chairperson Boswell adjourned the Special Meeting at 9:45 p.m.

William F. Boswell, Chairperson
Rochester Hills Planning Commission

Nicholas O. Kaltsounis, Secretary